PDS4 Data Dictionary - Abridged - V.1.1.0.1

PDS4 Data Design Working Group

Version 1.1.0.1 - Thu Nov 21 17:20:17 PST 2013

Generated from the PDS4 Information Model Version 1.1.0.1

Table Of Contents

1. ## Introduction

   The Planetary Data System (PDS) PDS4 Data Dictionary defines the organization and components of PDS4 product labels. Components of a product label include classes and their attributes.

2. ## Audience

   The PDS4 Data Dictionary - Abridged - has been abstracted from the unabridged version with the needs of data providers and data end users in mind. It contains full definitions but not all the fine detail or repetition necessary to support the underlying Information Model.

3. ## Acknowledgements

   The PDS4 Data Dictionary and the PDS4 Information Model is a joint effort involving representatives from each of the PDS nodes functioning as the PDS4 Data Design Working Group.

4. ## Scope

   The PDS4 Data Dictionary defines the common and discipline level classes and attributes used to create PDS4 product labels. It also defines the meta-attributes (i.e. attributes about attributes) used to define attributes. This abridged version includes only one entry for each attribute where the unabridge version includes an entry for each use of an attribute in a class.

5. ## Related Documents

a. Controlling Documents
   - PDS4 Information Model Specification - The PDS4 Information Model is used as the source for class, attribute, and data type definitions. The model is presented in document format as the PDS4 Information Model Specification.
   - ISO/IEC 11179:3 Registry Metamodel and Basic Attributes Specification, 2003. - The ISO/IEC 11179 specification provides the schema for the PDS4 data dictionary.

b. Reference Documents
   - Planetary Science Data Dictionary - The online version of the PDS3 data dictionary was used as the source for a few data elements being carried over from the PDS3 data standards.

6. **Terminology**

This document uses very specific engineering terminology to describe the various structures involved. It is particularly important that readers who have absorbed the PDS Standards Reference bear in mind that terms which are familiar in that context can have very different meanings in the present document.
Following are some definitions of essential terms used throughout this document.

- An *attribute* is a property or characteristic that provides a unit of information. For example, 'color' and 'length' are possible attributes.
- A *class* is a set of attributes (including a name) which defines a family. A class is generic a template from which individual members of the family may be constructed.
- A *conceptual object* is an object which is intangible (and, because it is intangible, does not fit into a digital archive). Examples of 'conceptual objects' include the Cassini mission and NASA's strategic plan for solar system exploration. Note that a PDF describing the Cassini mission is a digital object, not a conceptual object (nor a component of a conceptual object).
- A *data element* is a unit of data for which the definition, identification, representation and *permissible values* are specified by means of a set of attributes. For example, the concept of a *calibration_lamp_state_flag* is used in the PDS archive to indicate whether the lamp used for onboard camera calibration was turned on or off during the capture of an image. The *data element* aspect of this concept is the named attribute (or data element) *calibration_lamp_state_flag*.
- A *data object* is a physical, conceptual, or digital object.
- A *digital object* is an object which is real data for example, a binary image of a redwood tree or an ASCII table of atmospheric composition versus altitude.
- *Formal* as used in the definition of attributes that are names indicates that an established procedure was involved in creating the name.
- A *unique identifier* is a special type of identifier used to provide a reference number which is unique in a context.
- *Local* refers to the context within a single label.
- *Logical* as used in the definition of logical identifier indicates that the identifier logically groups a set of objects.
- A *physical object* is an object which is physical or tangible (and, therefore, does not itself fit into a digital archive). Examples of 'physical objects' include the planet Saturn and the Venus Express magnetometer. Note that an ASCII file describing Saturn is a digital object, not a physical object (nor a component of a physical object).
- A *resource* is the target (referent) of any Uniform Resource Identifier; the thing to which a URI points.

7. **PDS4 Class Definitions - Thu Nov 21 17:20:17 PST 2013**

Generated from the PDS4 Information Model Version 1.1.0.1

- **Archival_Information_Package**

   description: **The Archival Information Package (AIP) class defines an Information Package consisting of the Content Information and the associated Preservation Description Information (PDI), which is preserved within an archive that conforms to the Open Archive Information System (OAIS) Reference Model.**
   role: **Concrete**
   attribute: **description**

- **End** Archival_Information_Package

- **DIP_Deep_Archive**

   description: **The Dissemination Information Package Deep Archive class is an Information Package derived from one or more AIPs and is received by the National Space Science Data Center (NSSDC).**
   role: **Concrete**
   attribute: **description**

- **End** DIP_Deep_Archive

- **Dissemination_Information_Package**

   description: **The Dissemination Information Package (DIP) class defines an Information Package, derived from one or more AIPs, that is received by a consumer.**
   role: **Concrete**
   attribute: **description**

- **End** Dissemination_Information_Package

- ## Encoded_Header

  description: **The Encoded Header class describes a header that has been encoded using an encoding scheme that is compliant to an external standard.**
  role: **Concrete**
  attribute: **description** Optional
  attribute: **encoding_standard_id** value: **TIFF**
  attribute: **local_identifier** Optional
  attribute: **name** Optional
  attribute: **object_length** Optional
  attribute: **offset**

- **End** Encoded_Header

- ## Header

  description: **The Header class describes a data object header.**
  role: **Concrete**
  attribute: **description** Optional
  attribute: **local_identifier** Optional
  attribute: **name** Optional
  attribute: **object_length**
  attribute: **offset**
  attribute: **parsing_standard_id** value: **7-Bit ASCII Text, CDF 3.4 ISTP/IACG, FITS 3.0, ISIS2, ISIS3, PDS DSV 1, PDS ODL 2, PDS3, Pre-PDS3, UTF-8 Text, VICAR1, VICAR2**

- **End** Header

- ## Ingest_LDD

  description: **The Ingest_LDD class provides a form for collecting class and attribute definitions.**
  role: **Concrete**
  attribute: **comment** Optional
  attribute: **full_name**
  attribute: **last_modification_date_time**
  attribute: **ldd_version_id**
  attribute: **name**
  attribute: **namespace_id**
  attribute: **steward_id**

  - ### DD_Attribute - occurs 1 to * times

    description: **The DD_Attribute class defines an attribute for a data dictionary.**
    role: **Concrete**
    attribute: **comment** Optional
    attribute: **definition**
    attribute: **local_identifier**
    attribute: **name**
    attribute: **nillable_flag**
    attribute: **submitter_name**
    attribute: **version_id**

    - #### DD_Value_Domain occurs 1 times

      description: **The DD_Value_Domain class defines an attribute's permissible values and their constraints.**
      role: **Concrete**
      attribute: **enumeration_flag**
      attribute: **formation_rule** Optional
      attribute: **maximum_characters** Optional
      attribute: **maximum_value** Optional
      attribute: **minimum_characters** Optional
      attribute: **minimum_value** Optional
      attribute: **pattern** Optional
      attribute: **specified_unit_id** Optional
      attribute: **unit_of_measure_type** value: **Units_of_Acceleration, Units_of_Amount_Of_Substance,**

Units_of_Angle, Units_of_Angular_Velocity, Units_of_Area, Units_of_Frame_Rate, Units_of_Frequency, Units_of_Length, Units_of_Map_Scale, Units_of_Mass, Units_of_Misc, Units_of_None, Units_of_Optical_Path_Length, Units_of_Pressure, Units_of_Radiance, Units_of_Rates, Units_of_Solid_Angle, Units_of_Spectral_Irradiance, Units_of_Spectral_Radiance, Units_of_Storage, Units_of_Temperature, Units_of_Time, Units_of_Velocity, Units_of_Voltage, Units_of_Volume, Units_of_Wavenumber ^{Optional}

attribute: **value_data_type** value: **ASCII_AnyURI, ASCII_Boolean, ASCII_DOI, ASCII_Date_DOY, ASCII_Date_Time, ASCII_Date_Time_DOY, ASCII_Date_Time_UTC, ASCII_Date_Time_YMD, ASCII_Date_YMD, ASCII_Directory_Path_Name, ASCII_File_Name, ASCII_File_Specification_Name, ASCII_Integer, ASCII_LID, ASCII_LIDVID, ASCII_LIDVID_LID, ASCII_MD5_Checksum, ASCII_NonNegative_Integer, ASCII_Numeric_Base16, ASCII_Numeric_Base2, ASCII_Numeric_Base8, ASCII_Real, ASCII_Short_String_Collapsed, ASCII_Short_String_Preserved, ASCII_Text_Collapsed, ASCII_Text_Preserved, ASCII_Time, ASCII_VID, UTF8_Short_String_Collapsed, UTF8_Short_String_Preserved, UTF8_Text_Preserved, Vector_Cartesian_3, Vector_Cartesian_3_Acceleration, Vector_Cartesian_3_Pointing, Vector_Cartesian_3_Position, Vector_Cartesian_3_Velocity**

- **DD_Permissible_Value - occurs 0 to * times**

  description: **The DD_Permissible_Value class lists permissible values and their meanings.**
  role: **Concrete**
  attribute: **value**
  attribute: **value_meaning**

  - **End** DD_Permissible_Value
- **End** DD_Value_Domain

- **Internal_Reference - occurs 0 to * times**

  description: **The Internal_Reference class is used to cross-reference other products in the PDS registry system.**
  role: **Concrete**
  attribute: **comment** ^{Optional}
  attribute: **lid_reference** ^{Optional}
  attribute: **lidvid_reference** ^{Optional}
  attribute: **reference_type**

- **End** Internal_Reference

- **Terminological_Entry - occurs 0 to * times**

  description: **The terminological_entry class provides the name (designation) and definition of the attribute in a specified natural language.**
  role: **Concrete**
  attribute: **definition**
  attribute: **language** value: **English, Russian**
  attribute: **name**
  attribute: **preferred_flag**

  - **External_Reference_Extended - occurs 0 to * times**

    description: **The External_Reference_Extended class is used to reference a source outside the PDS registry system. This extension is used in the local data dictionary.**
    role: **Concrete**
    attribute: **description** ^{Optional}
    attribute: **doi** ^{Optional}
    attribute: **name** ^{Optional}
    attribute: **reference_text**
    attribute: **url** ^{Optional}

  - **End** External_Reference_Extended
- **End** Terminological_Entry
- **End** DD_Attribute

- **DD_Class - occurs 0 to * times**

  description: **The DD_Class class defines a class for a data dictionary.**
  role: **Concrete**
  attribute: **abstract_flag** ^{Optional}
  attribute: **definition**
  attribute: **local_identifier**
  attribute: **name**
  attribute: **submitter_name**
  attribute: **version_id**

- **DD_Association - occurs 1 to * times**

  description: **The DD_Association class defines the association between two classes or a class and an attribute in a data dictionary.**
  role: **Concrete**
  attribute: **constant_value** Optional
  attribute: **local_identifier**
  attribute: **maximum_occurrences**
  attribute: **minimum_occurrences**
  attribute: **reference_type** value: **attribute_of, component_of, extension_of, restriction_of, subclass_of**

- **End** DD_Association

- **DD_Association_External - occurs 1 to * times**

  description: **The DD_Association_External class defines the association between classes and attributes within the local data dictionary and those external to the local data dictionary.**
  role: **Concrete**
  attribute: **maximum_occurrences**
  attribute: **minimum_occurrences**
  attribute: **name**
  attribute: **namespace_id**
  attribute: **reference_type** value: **attribute_of, component_of, extension_of, restriction_of, subclass_of**

- **End** DD_Association_External

- **Internal_Reference - occurs 0 to * times**

  description: **The Internal_Reference class is used to cross-reference other products in the PDS registry system.**
  role: **Concrete**
  attribute: **comment** Optional
  attribute: **lid_reference** Optional
  attribute: **lidvid_reference** Optional
  attribute: **reference_type**

- **End** Internal_Reference

- **Terminological_Entry - occurs 0 to * times**

  description: **The terminological_entry class provides the name (designation) and definition of the attribute in a specified natural language.**
  role: **Concrete**
  attribute: **definition**
  attribute: **language** value: **English, Russian**
  attribute: **name**
  attribute: **preferred_flag**

  - **External_Reference_Extended - occurs 0 to * times**

    description: **The External_Reference_Extended class is used to reference a source outside the PDS registry system. This extension is used in the local data dictionary.**
    role: **Concrete**
    attribute: **description** Optional
    attribute: **doi** Optional
    attribute: **name** Optional
    attribute: **reference_text**
    attribute: **url** Optional

  - **End** External_Reference_Extended
- **End** Terminological_Entry
- **End** DD_Class
- **End** Ingest_LDD

- **Product_AIP**

  description: **The Product AIP class defines a product for the Archival Information Package.**
  role: **Concrete**

  - **Archival_Information_Package occurs 1 times**

description: **The Archival Information Package (AIP) class defines an Information Package consisting of the Content Information and the associated Preservation Description Information (PDI), which is preserved within an archive that conforms to the Open Archive Information System (OAIS) Reference Model.**
role: **Concrete**
attribute: **description**

- **End** Archival_Information_Package

- **Identification_Area occurs 1 times**

  description: **The identification area consists of attributes that identify and name an object.**
  role: **Concrete**
  attribute: **information_model_version** value: **1.1.0.1**
  attribute: **logical_identifier**
  attribute: **product_class** value: **Product_AIP**
  attribute: **title**
  attribute: **version_id**

    - **Alias_List - occurs 0 to 1 times**

      description: **The Alias_List class provides a list of paired alternate names and identifications for this product in this or some other archive or data system.**
      role: **Concrete**

        - **Alias - occurs 1 to * times**

          description: **The Alias class provides a single alternate name and identification for this product in this or some other archive or data system.**
          role: **Concrete**
          attribute: **alternate_id** Optional
          attribute: **alternate_title** Optional
          attribute: **comment** Optional

        - **End** Alias
    - **End** Alias_List

    - **Citation_Information - occurs 0 to 1 times**

      description: **The Citation_Information class provides specific fields often used in citing the product in journal articles, abstract services, and other reference contexts.**
      role: **Concrete**
      attribute: **author_list** Optional
      attribute: **description**
      attribute: **editor_list** Optional
      attribute: **keyword** Optional
      attribute: **publication_year**

    - **End** Citation_Information

    - **Modification_History - occurs 0 to 1 times**

      description: **The Modification_History class tracks the history of changes made to the product once it enters the registry system.**
      role: **Concrete**

        - **Modification_Detail - occurs 1 to * times**

          description: **The Modification_Detail class provides the details of one round of modification for the product. The first, required, instance of this class documents the date the product was first registered.**
          role: **Concrete**
          attribute: **description**
          attribute: **modification_date**
          attribute: **version_id**

        - **End** Modification_Detail
    - **End** Modification_History
- **End** Identification_Area

- **Information_Package_Component - occurs 1 to * times**

  description: **The Information_Package_Component class associates a Bundle, Collections or Basic Products with Checksum and Storage Manifests.**
  role: **Concrete**

attribute: **checksum_manifest_checksum** ^{Optional}
attribute: **checksum_type** ^{Optional}
attribute: **transfer_manifest_checksum** ^{Optional}

- **File_Area_Checksum_Manifest - occurs 0 to 1 times**

  description: **The File Area Checksum Manifest class describes a file that contains a two column table for file references and checksums.**
  role: **Concrete**

  - **Checksum_Manifest occurs 1 times**

    description: **The Checksum_Manifest class defines a two column table for file references and checksums. The table structure is compatible with the output from an MD5 checksum utility.**
    role: **Concrete**
    attribute: **description** ^{Optional}
    attribute: **local_identifier** ^{Optional}
    attribute: **name** ^{Optional}
    attribute: **object_length** ^{Optional}
    attribute: **offset**
    attribute: **parsing_standard_id** value: **MD5Deep 4.n**
    attribute: **record_delimiter** value: **carriage-return line-feed**

  - **End** Checksum_Manifest

  - **File occurs 1 times**

    description: **The File class consists of attributes that describe a file in a data store.**
    role: **Concrete**
    attribute: **comment** ^{Optional}
    attribute: **creation_date_time** ^{Optional}
    attribute: **file_name**
    attribute: **file_size** ^{Optional}
    attribute: **local_identifier** ^{Optional}
    attribute: **md5_checksum** ^{Optional}
    attribute: **records** ^{Optional}

  - **End** File
- **End** File_Area_Checksum_Manifest

- **File_Area_Transfer_Manifest - occurs 0 to 1 times**

  description: **The File Area Transfer Manifest class describes a file that contains a two column table that maps the logical identifiers and version ids of products to their file specification names.**
  role: **Concrete**

  - **File occurs 1 times**

    description: **The File class consists of attributes that describe a file in a data store.**
    role: **Concrete**
    attribute: **comment** ^{Optional}
    attribute: **creation_date_time** ^{Optional}
    attribute: **file_name**
    attribute: **file_size** ^{Optional}
    attribute: **local_identifier** ^{Optional}
    attribute: **md5_checksum** ^{Optional}
    attribute: **records** ^{Optional}

  - **End** File

  - **Transfer_Manifest occurs 1 times - Base_Class:Table_Base**

    description: **The Transfer_Manifest class defines a table that maps product LIDVIDs to the file_specificaition_names of the products' XML label files.**
    role: **Concrete**
    attribute: **description** ^{Optional}
    attribute: **local_identifier** ^{Optional}
    attribute: **name** ^{Optional}

attribute: **offset**
attribute: **record_delimiter** value: **carriage-return line-feed**
attribute: **records**

- **Record_Character occurs 1 times**

  description: **The Record_Character class is a component of the table class and defines a record of the table.**
  role: **Concrete**
  attribute: **fields**
  attribute: **groups**
  attribute: **record_length**

  - **Field_Character - occurs 1 to * times**

    description: **The Field_Character class defines a field of a character record or a field of a character group.**
    role: **Concrete**
    attribute: **data_type** value: **ASCII_AnyURI, ASCII_Boolean, ASCII_DOI, ASCII_Date, ASCII_Date_DOY, ASCII_Date_Time, ASCII_Date_Time_DOY, ASCII_Date_Time_UTC, ASCII_Date_Time_YMD, ASCII_Date_YMD, ASCII_Directory_Path_Name, ASCII_File_Name, ASCII_File_Specification_Name, ASCII_Integer, ASCII_LID, ASCII_LIDVID, ASCII_LIDVID_LID, ASCII_MD5_Checksum, ASCII_NonNegative_Integer, ASCII_Numeric_Base16, ASCII_Numeric_Base2, ASCII_Numeric_Base8, ASCII_Real, ASCII_String, ASCII_Time, ASCII_VID, UTF8_String**
    attribute: **description** Optional
    attribute: **field_format** Optional
    attribute: **field_length**
    attribute: **field_location**
    attribute: **field_number** Optional
    attribute: **name**
    attribute: **scaling_factor** Optional
    attribute: **unit** Optional
    attribute: **value_offset** Optional

    - **Field_Statistics - occurs 0 to 1 times**

      description: **The Field Statistics class provides a set of metrics for a column formed by a field in a repeating record.**
      role: **Concrete**
      attribute: **description** Optional
      attribute: **local_identifier** Optional
      attribute: **maximum** Optional
      attribute: **mean** Optional
      attribute: **median** Optional
      attribute: **minimum** Optional
      attribute: **standard_deviation** Optional

  - **End** Field_Statistics

  - **Special_Constants - occurs 0 to 1 times**

    description: **The Special Constants class provides a set of values used to indicate special cases that occur in the data.**
    role: **Concrete**
    attribute: **error_constant** Optional
    attribute: **high_instrument_saturation** value: **-32765, 255, 3, 65534, FF7FFFFE, FFFCFFFF** Optional
    attribute: **high_representation_saturation** value: **-32764, 255, 4, 65535, FF7FFFFF, FFFBFFFF** Optional
    attribute: **invalid_constant** Optional
    attribute: **low_instrument_saturation** value: **-32766, 0, 2, FF7FFFFD, FFFDFFFF** Optional
    attribute: **low_representation_saturation** value: **-32767, 1, 16#FF7FFFFC#, 16#FFFEFFFF#** Optional
    attribute: **missing_constant** Optional
    attribute: **not_applicable_constant** Optional
    attribute: **saturated_constant** Optional
    attribute: **unknown_constant** Optional

attribute: **valid_maximum** value: **254, 32767, 65522** ^{Optional}
attribute: **valid_minimum** value: **-32752, 1, 3, 5, FF7FFFFA, FFEFFFFF**
Optional

- **End** Special_Constants
- **End** Field_Character

- **Group_Field_Character - occurs 1 to * times**

  description: **The Group_Field_Character class allows a group of table fields.**
  role: **Concrete**
  attribute: **fields**
  attribute: **group_length**
  attribute: **group_location**
  attribute: **group_number** ^{Optional}
  attribute: **groups**
  attribute: **repetitions**

  - **Field_Character - occurs 1 to * times**

    description: **The Field_Character class defines a field of a character record or a field of a character group.**
    role: **Concrete**
    attribute: **data_type** value: **ASCII_AnyURI, ASCII_Boolean, ASCII_DOI, ASCII_Date, ASCII_Date_DOY, ASCII_Date_Time, ASCII_Date_Time_DOY, ASCII_Date_Time_UTC, ASCII_Date_Time_YMD, ASCII_Date_YMD, ASCII_Directory_Path_Name, ASCII_File_Name, ASCII_File_Specification_Name, ASCII_Integer, ASCII_LID, ASCII_LIDVID, ASCII_LIDVID_LID, ASCII_MD5_Checksum, ASCII_NonNegative_Integer, ASCII_Numeric_Base16, ASCII_Numeric_Base2, ASCII_Numeric_Base8, ASCII_Real, ASCII_String, ASCII_Time, ASCII_VID, UTF8_String**
    attribute: **description** ^{Optional}
    attribute: **field_format** ^{Optional}
    attribute: **field_length**
    attribute: **field_location**
    attribute: **field_number** ^{Optional}
    attribute: **name**
    attribute: **scaling_factor** ^{Optional}
    attribute: **unit** ^{Optional}
    attribute: **value_offset** ^{Optional}

    - **Field_Statistics - occurs 0 to 1 times**

      description: **The Field Statistics class provides a set of metrics for a column formed by a field in a repeating record.**
      role: **Concrete**
      attribute: **description** ^{Optional}
      attribute: **local_identifier** ^{Optional}
      attribute: **maximum** ^{Optional}
      attribute: **mean** ^{Optional}
      attribute: **median** ^{Optional}
      attribute: **minimum** ^{Optional}
      attribute: **standard_deviation** ^{Optional}

    - **End** Field_Statistics

    - **Special_Constants - occurs 0 to 1 times**

      description: **The Special Constants class provides a set of values used to indicate special cases that occur in the data.**
      role: **Concrete**
      attribute: **error_constant** ^{Optional}
      attribute: **high_instrument_saturation** value: **-32765, 255, 3, 65534, FF7FFFFE, FFFCFFFF** ^{Optional}
      attribute: **high_representation_saturation** value: **-32764, 255, 4, 65535, FF7FFFFF, FFFBFFFF** ^{Optional}
      attribute: **invalid_constant** ^{Optional}
      attribute: **low_instrument_saturation** value: **-32766, 0, 2, FF7FFFFD, FFFDFFFF** ^{Optional}
      attribute: **low_representation_saturation** value: **-32767, 1,**

16#FF7FFFFC#, 16#FFFEFFFF# ^{Optional}
attribute: **missing_constant** ^{Optional}
attribute: **not_applicable_constant** ^{Optional}
attribute: **saturated_constant** ^{Optional}
attribute: **unknown_constant** ^{Optional}
attribute: **valid_maximum** value: **254, 32767, 65522** ^{Optional}
attribute: **valid_minimum** value: **-32752, 1, 3, 5, FF7FFFFA, FFEFFFFF** ^{Optional}

- **End** Special_Constants
- **End** Field_Character
- **End** Group_Field_Character
- **End** Record_Character

- **Uniformly_Sampled - occurs 0 to 1 times**

  description: **The Uniformly_Sampled class provides parameters for a uniformly sampled table.**
  role: **Concrete**
  attribute: **first_sampling_parameter_value**
  attribute: **last_sampling_parameter_value**
  attribute: **sampling_parameter_interval**
  attribute: **sampling_parameter_name**
  attribute: **sampling_parameter_scale** value: **Exponential, Linear, Logarithmic** ^{Optional}
  attribute: **sampling_parameter_unit**

  - **End** Uniformly_Sampled
- **End** Transfer_Manifest
- **End** File_Area_Transfer_Manifest

- **Internal_Reference - occurs 1 to * times**

  description: **The Internal_Reference class is used to cross-reference other products in the PDS registry system.**
  role: **Concrete**
  attribute: **comment** ^{Optional}
  attribute: **lid_reference** ^{Optional}
  attribute: **lidvid_reference** ^{Optional}
  attribute: **reference_type**

  - **End** Internal_Reference
- **End** Information_Package_Component

- **Reference_List - occurs 0 to 1 times**

  description: **The Reference_List class provides lists general references and cross-references for the product. References cited elsewhere in the label need not be repeated here.**
  role: **Concrete**

  - **External_Reference - occurs 0 to * times**

    description: **The External_Reference class is used to reference a source outside the PDS registry system.**
    role: **Concrete**
    attribute: **description** ^{Optional}
    attribute: **doi** ^{Optional}
    attribute: **reference_text**

    - **End** External_Reference

  - **Internal_Reference - occurs 0 to * times**

    description: **The Internal_Reference class is used to cross-reference other products in the PDS registry system.**
    role: **Concrete**
    attribute: **comment** ^{Optional}
    attribute: **lid_reference** ^{Optional}
    attribute: **lidvid_reference** ^{Optional}
    attribute: **reference_type**

    - **End** Internal_Reference
  - **End** Reference_List
- **End** Product_AIP

- **Product_Attribute_Definition**

  description: **The Product Attribute Definition provides an attribute definition in XML encoding.**
  role: **Concrete**

  - **DD_Attribute_Full occurs 1 times**

    description: **The DD_Attribute_Full class provides a more complete definition of an attribute in the data dictionary.**
    role: **Concrete**
    attribute: **attribute_concept** value: **Address, Angle, Attribute, Bit, Checksum, Collection, Constant, Cosine, Count, DOI, Delimiter, Description, Deviation, Direction, Distance, Duration, Factor, Flag, Format, Group, Home, ID, Latitude, Length, List, Location, Logical, Longitude, Mask, Maximum, Mean, Median, Minimum, Name, Note, Number, Offset, Order, Parallel, Password, Path, Pattern, Pixel, Quaternion, Radius, Ratio, Reference, Resolution, Role, Rotation, Scale, Sequence, Set, Size, Status, Summary, Syntax, Temperature, Text, Title, Type, Unit, Unknown, Value, Vector**
    attribute: **class_name**
    attribute: **comment** Optional
    attribute: **definition**
    attribute: **local_identifier**
    attribute: **name**
    attribute: **namespace_id**
    attribute: **nillable_flag**
    attribute: **registered_by**
    attribute: **registration_authority_id** value: **0001_NASA_PDS_1**
    attribute: **steward_id** value: **atm, geo, img, naif, ops, pds, ppi, rings, rs, sbn**
    attribute: **submitter_name**
    attribute: **type** value: **PDS3, PDS4**
    attribute: **version_id**

    - **DD_Value_Domain_Full - occurs 0 to 1 times**

      description: **The DD_Value_Domain_Full class provides a more complete definition of a attribute's value domain.**
      role: **Concrete**
      attribute: **conceptual_domain** value: **Boolean, Integer, Name, Numeric, Real, Short_String, Text, Time, Type, Unknown**
      attribute: **enumeration_flag**
      attribute: **formation_rule** Optional
      attribute: **maximum_characters** Optional
      attribute: **maximum_value** Optional
      attribute: **minimum_characters** Optional
      attribute: **minimum_value** Optional
      attribute: **pattern** Optional
      attribute: **specified_unit_id** Optional
      attribute: **unit_of_measure_type** value: **Units_of_Amount_Of_Substance, Units_of_Angle, Units_of_Angular_Velocity, Units_of_Area, Units_of_Frame_Rate, Units_of_Frequency, Units_of_Length, Units_of_Map_Scale, Units_of_Mass, Units_of_Misc, Units_of_None, Units_of_Optical_Path_Length, Units_of_Pressure, Units_of_Radiance, Units_of_Rates, Units_of_Solid_Angle, Units_of_Spectral_Irradiance, Units_of_Spectral_Radiance, Units_of_Storage, Units_of_Temperature, Units_of_Time, Units_of_Velocity, Units_of_Voltage, Units_of_Volume, Units_of_Wavenumber** Optional
      attribute: **value_data_type** value: **ASCII_AnyURI, ASCII_Boolean, ASCII_DOI, ASCII_Date_DOY, ASCII_Date_Time, ASCII_Date_Time_DOY, ASCII_Date_Time_UTC, ASCII_Date_Time_YMD, ASCII_Date_YMD, ASCII_Directory_Path_Name, ASCII_File_Name, ASCII_File_Specification_Name, ASCII_Integer, ASCII_LID, ASCII_LIDVID, ASCII_LIDVID_LID, ASCII_MD5_Checksum, ASCII_NonNegative_Integer, ASCII_Numeric_Base16, ASCII_Numeric_Base2, ASCII_Numeric_Base8, ASCII_Real, ASCII_Short_String_Collapsed, ASCII_Short_String_Preserved, ASCII_Text_Collapsed, ASCII_Text_Preserved, ASCII_Time, ASCII_VID, UTF8_Short_String_Collapsed, UTF8_Short_String_Preserved, UTF8_Text_Preserved**

      - **DD_Permissible_Value_Full - occurs 0 to * times**

        description: **The DD_Permissible_Value_Full class lists permissible values, their meanings, and the dates when active.**
        role: **Concrete**
        attribute: **value**
        attribute: **value_begin_date**
        attribute: **value_end_date**
        attribute: **value_meaning** Optional

      - **End** DD_Permissible_Value_Full

- **End** DD_Value_Domain_Full

- **Terminological_Entry - occurs 1 to * times**

  description: **The terminological_entry class provides the name (designation) and definition of the attribute in a specified natural language.**
  role: **Concrete**
  attribute: **definition**
  attribute: **language** value: **English, Russian**
  attribute: **name**
  attribute: **preferred_flag**

  - **External_Reference_Extended - occurs 0 to * times**

    description: **The External_Reference_Extended class is used to reference a source outside the PDS registry system. This extension is used in the local data dictionary.**
    role: **Concrete**
    attribute: **description** Optional
    attribute: **doi** Optional
    attribute: **name** Optional
    attribute: **reference_text**
    attribute: **url** Optional

  - **End** External_Reference_Extended
- **End** Terminological_Entry
- **End** DD_Attribute_Full

- **Identification_Area occurs 1 times**

  description: **The identification area consists of attributes that identify and name an object.**
  role: **Concrete**
  attribute: **information_model_version** value: **1.1.0.1**
  attribute: **logical_identifier**
  attribute: **product_class** value: **Product_Attribute_Definition**
  attribute: **title**
  attribute: **version_id**

  - **Alias_List - occurs 0 to 1 times**

    description: **The Alias_List class provides a list of paired alternate names and identifications for this product in this or some other archive or data system.**
    role: **Concrete**

    - **Alias - occurs 1 to * times**

      description: **The Alias class provides a single alternate name and identification for this product in this or some other archive or data system.**
      role: **Concrete**
      attribute: **alternate_id** Optional
      attribute: **alternate_title** Optional
      attribute: **comment** Optional

    - **End** Alias
  - **End** Alias_List

  - **Citation_Information - occurs 0 to 1 times**

    description: **The Citation_Information class provides specific fields often used in citing the product in journal articles, abstract services, and other reference contexts.**
    role: **Concrete**
    attribute: **author_list** Optional
    attribute: **description**
    attribute: **editor_list** Optional
    attribute: **keyword** Optional
    attribute: **publication_year**

  - **End** Citation_Information

  - **Modification_History - occurs 0 to 1 times**

    description: **The Modification_History class tracks the history of changes made to the product once it enters the registry system.**
    role: **Concrete**

- **Modification_Detail - occurs 1 to * times**

  description: **The Modification_Detail class provides the details of one round of modification for the product. The first, required, instance of this class documents the date the product was first registered.**
  role: **Concrete**
  attribute: **description**
  attribute: **modification_date**
  attribute: **version_id**

  - **End** Modification_Detail
- **End** Modification_History
- **End** Identification_Area

- **Reference_List - occurs 0 to 1 times**

  description: **The Reference_List class provides lists general references and cross-references for the product. References cited elsewhere in the label need not be repeated here.**
  role: **Concrete**

  - **External_Reference - occurs 0 to * times**

    description: **The External_Reference class is used to reference a source outside the PDS registry system.**
    role: **Concrete**
    attribute: **description** Optional
    attribute: **doi** Optional
    attribute: **reference_text**

  - **End** External_Reference

  - **Internal_Reference - occurs 0 to * times**

    description: **The Internal_Reference class is used to cross-reference other products in the PDS registry system.**
    role: **Concrete**
    attribute: **comment** Optional
    attribute: **lid_reference** Optional
    attribute: **lidvid_reference** Optional
    attribute: **reference_type**

  - **End** Internal_Reference
- **End** Reference_List
- **End** Product_Attribute_Definition

- **Product_Browse**

  description: **The Product Browse class defines a product consisting of one encoded byte stream digital object.**
  role: **Concrete**

  - **File_Area_Browse - occurs 1 to * times**

    description: **The File Area Browse class describes a file and one or more tagged_data_objects contained within the file.**
    role: **Concrete**

    - **Array_1D - occurs 1 to * times**

      description: **The Array 1D class is the parent class for all one dimensional array based classes.**
      role: **Concrete**
      attribute: **axes** value: **1**
      attribute: **axis_index_order** value: **Last Index Fastest**
      attribute: **description** Optional
      attribute: **local_identifier** Optional
      attribute: **name** Optional
      attribute: **offset**

      - **Axis_Array occurs 1 times**

        description: **The Axis Array class is used as a component of the array class and defines an**

axis of the array.
role: **Concrete**
attribute: **axis_name**
attribute: **elements**
attribute: **local_identifier** Optional
attribute: **sequence_number**
attribute: **unit** Optional

- **Band_Bin_Set - occurs 0 to 1 times**

  description: **The Band_Bin_Set class contains the spectral characteristics for all the spectral bands in a qube.**
  role: **Concrete**

  - **Band_Bin - occurs 1 to * times**

    description: **The Band_Bin class specifies the characteristics of an individual spectral band in a spectral qube.**
    role: **Concrete**
    attribute: **band_number**
    attribute: **band_width**
    attribute: **center_wavelength**
    attribute: **detector_number** Optional
    attribute: **filter_number** Optional
    attribute: **grating_position** Optional
    attribute: **original_band** Optional
    attribute: **scaling_factor** Optional
    attribute: **standard_deviation** Optional
    attribute: **value_offset** Optional

    - **End** Band_Bin
  - **End** Band_Bin_Set
- **End** Axis_Array

- **Element_Array occurs 1 times**

  description: **The Element Array class is used as a component of the array class and defines an element of the array.**
  role: **Concrete**
  attribute: **data_type** value: **ComplexLSB16, ComplexLSB8, ComplexMSB16, ComplexMSB8, IEEE754LSBDouble, IEEE754LSBSingle, IEEE754MSBDouble, IEEE754MSBSingle, SignedBitString, SignedByte, SignedLSB2, SignedLSB4, SignedLSB8, SignedMSB2, SignedMSB4, SignedMSB8, UnsignedBitString, UnsignedByte, UnsignedLSB2, UnsignedLSB4, UnsignedLSB8, UnsignedMSB2, UnsignedMSB4, UnsignedMSB8**
  attribute: **scaling_factor** Optional
  attribute: **unit** Optional
  attribute: **value_offset** Optional

- **End** Element_Array

- **Object_Statistics - occurs 0 to 1 times**

  description: **The Object Statistics class provides a set of values that provide metrics about the object.**
  role: **Concrete**
  attribute: **bit_mask** Optional
  attribute: **description** Optional
  attribute: **local_identifier** Optional
  attribute: **maximum** Optional
  attribute: **maximum_scaled_value** Optional
  attribute: **md5_checksum** Optional
  attribute: **mean** Optional
  attribute: **median** Optional
  attribute: **minimum** Optional
  attribute: **minimum_scaled_value** Optional
  attribute: **standard_deviation** Optional

- **End** Object_Statistics

- **Special_Constants - occurs 0 to 1 times**

  description: **The Special Constants class provides a set of values used to indicate special**

cases that occur in the data.
role: **Concrete**

attribute: **error_constant** ^{Optional}
attribute: **high_instrument_saturation** value: **-32765, 255, 3, 65534, FF7FFFFE, FFFCFFFF** ^{Optional}

attribute: **high_representation_saturation** value: **-32764, 255, 4, 65535, FF7FFFFF, FFFBFFFF** ^{Optional}

attribute: **invalid_constant** ^{Optional}
attribute: **low_instrument_saturation** value: **-32766, 0, 2, FF7FFFFD, FFFDFFFF** ^{Optional}
attribute: **low_representation_saturation** value: **-32767, 1, 16#FF7FFFFC#, 16#FFFEFFFF#** ^{Optional}

attribute: **missing_constant** ^{Optional}
attribute: **not_applicable_constant** ^{Optional}
attribute: **saturated_constant** ^{Optional}
attribute: **unknown_constant** ^{Optional}
attribute: **valid_maximum** value: **254, 32767, 65522** ^{Optional}
attribute: **valid_minimum** value: **-32752, 1, 3, 5, FF7FFFFA, FFEFFFFF** ^{Optional}

- **End** Special_Constants

- **End** Array_1D

- **Array_2D - occurs 1 to * times**

  description: **The Array 2D class is the parent class for all two dimensional array based classes.**
  role: **Concrete**
  attribute: **axes** value: **2**
  attribute: **axis_index_order** value: **Last Index Fastest**
  attribute: **description** ^{Optional}
  attribute: **local_identifier** ^{Optional}
  attribute: **name** ^{Optional}
  attribute: **offset**

  - **Axis_Array occurs 2 times**

    description: **The Axis Array class is used as a component of the array class and defines an axis of the array.**
    role: **Concrete**
    attribute: **axis_name**
    attribute: **elements**
    attribute: **local_identifier** ^{Optional}
    attribute: **sequence_number**
    attribute: **unit** ^{Optional}

    - **Band_Bin_Set - occurs 0 to 1 times**

      description: **The Band_Bin_Set class contains the spectral characteristics for all the spectral bands in a qube.**
      role: **Concrete**

      - **Band_Bin - occurs 1 to * times**

        description: **The Band_Bin class specifies the characteristics of an individual spectral band in a spectral qube.**
        role: **Concrete**
        attribute: **band_number**
        attribute: **band_width**
        attribute: **center_wavelength**
        attribute: **detector_number** ^{Optional}
        attribute: **filter_number** ^{Optional}
        attribute: **grating_position** ^{Optional}
        attribute: **original_band** ^{Optional}
        attribute: **scaling_factor** ^{Optional}
        attribute: **standard_deviation** ^{Optional}
        attribute: **value_offset** ^{Optional}

        - **End** Band_Bin
      - **End** Band_Bin_Set
    - **End** Axis_Array

  - **Element_Array occurs 1 times**

    description: **The Element Array class is used as a component of the array class and defines**

an element of the array.
role: **Concrete**
attribute: **data_type** value: **ComplexLSB16, ComplexLSB8, ComplexMSB16, ComplexMSB8, IEEE754LSBDouble, IEEE754LSBSingle, IEEE754MSBDouble, IEEE754MSBSingle, SignedBitString, SignedByte, SignedLSB2, SignedLSB4, SignedLSB8, SignedMSB2, SignedMSB4, SignedMSB8, UnsignedBitString, UnsignedByte, UnsignedLSB2, UnsignedLSB4, UnsignedLSB8, UnsignedMSB2, UnsignedMSB4, UnsignedMSB8**
attribute: **scaling_factor** Optional
attribute: **unit** Optional
attribute: **value_offset** Optional

- **End** Element_Array

- **Object_Statistics - occurs 0 to 1 times**

  description: **The Object Statistics class provides a set of values that provide metrics about the object.**
  role: **Concrete**
  attribute: **bit_mask** Optional
  attribute: **description** Optional
  attribute: **local_identifier** Optional
  attribute: **maximum** Optional
  attribute: **maximum_scaled_value** Optional
  attribute: **md5_checksum** Optional
  attribute: **mean** Optional
  attribute: **median** Optional
  attribute: **minimum** Optional
  attribute: **minimum_scaled_value** Optional
  attribute: **standard_deviation** Optional

- **End** Object_Statistics

- **Special_Constants - occurs 0 to 1 times**

  description: **The Special Constants class provides a set of values used to indicate special cases that occur in the data.**
  role: **Concrete**
  attribute: **error_constant** Optional
  attribute: **high_instrument_saturation** value: **-32765, 255, 3, 65534, FF7FFFFE, FFFCFFFF** Optional
  attribute: **high_representation_saturation** value: **-32764, 255, 4, 65535, FF7FFFFF, FFFBFFFF** Optional
  attribute: **invalid_constant** Optional
  attribute: **low_instrument_saturation** value: **-32766, 0, 2, FF7FFFFD, FFFDFFFF** Optional
  attribute: **low_representation_saturation** value: **-32767, 1, 16#FF7FFFFC#, 16#FFFEFFFF#** Optional
  attribute: **missing_constant** Optional
  attribute: **not_applicable_constant** Optional
  attribute: **saturated_constant** Optional
  attribute: **unknown_constant** Optional
  attribute: **valid_maximum** value: **254, 32767, 65522** Optional
  attribute: **valid_minimum** value: **-32752, 1, 3, 5, FF7FFFFA, FFEFFFFF** Optional

  - **End** Special_Constants
- **End** Array_2D

- **Array_2D_Image - occurs 1 to * times**

  description: **The Array 2D Image class is an extension of the Array 2D class and defines a two dimensional image.**
  role: **Concrete**
  attribute: **axes** value: **2**
  attribute: **axis_index_order** value: **Last Index Fastest**
  attribute: **description** Optional
  attribute: **local_identifier** Optional
  attribute: **name** Optional
  attribute: **offset**

  - **Axis_Array occurs 2 times**

    description: **The Axis Array class is used as a component of the array class and defines an**

axis of the array.
role: **Concrete**
attribute: **axis_name**
attribute: **elements**
attribute: **local_identifier** Optional
attribute: **sequence_number**
attribute: **unit** Optional

- **Band_Bin_Set - occurs 0 to 1 times**

  description: **The Band_Bin_Set class contains the spectral characteristics for all the spectral bands in a qube.**
  role: **Concrete**

  - **Band_Bin - occurs 1 to * times**

    description: **The Band_Bin class specifies the characteristics of an individual spectral band in a spectral qube.**
    role: **Concrete**
    attribute: **band_number**
    attribute: **band_width**
    attribute: **center_wavelength**
    attribute: **detector_number** Optional
    attribute: **filter_number** Optional
    attribute: **grating_position** Optional
    attribute: **original_band** Optional
    attribute: **scaling_factor** Optional
    attribute: **standard_deviation** Optional
    attribute: **value_offset** Optional

  - **End** Band_Bin
- **End** Band_Bin_Set
- **End** Axis_Array

- **Display_2D_Image - occurs 0 to 1 times**

  description: **The Display_2D_Image class provides attributes to enable the display of a 2 dimensional image.**
  role: **Concrete**
  attribute: **line_display_direction** value: **Down, Up**
  attribute: **sample_display_direction** value: **Right**

- **End** Display_2D_Image

- **Element_Array occurs 1 times**

  description: **The Element Array class is used as a component of the array class and defines an element of the array.**
  role: **Concrete**
  attribute: **data_type** value: **ComplexLSB16, ComplexLSB8, ComplexMSB16, ComplexMSB8, IEEE754LSBDouble, IEEE754LSBSingle, IEEE754MSBDouble, IEEE754MSBSingle, SignedBitString, SignedByte, SignedLSB2, SignedLSB4, SignedLSB8, SignedMSB2, SignedMSB4, SignedMSB8, UnsignedBitString, UnsignedByte, UnsignedLSB2, UnsignedLSB4, UnsignedLSB8, UnsignedMSB2, UnsignedMSB4, UnsignedMSB8**
  attribute: **scaling_factor** Optional
  attribute: **unit** Optional
  attribute: **value_offset** Optional

- **End** Element_Array

- **Object_Statistics - occurs 0 to 1 times**

  description: **The Object Statistics class provides a set of values that provide metrics about the object.**
  role: **Concrete**
  attribute: **bit_mask** Optional
  attribute: **description** Optional
  attribute: **local_identifier** Optional
  attribute: **maximum** Optional
  attribute: **maximum_scaled_value** Optional
  attribute: **md5_checksum** Optional
  attribute: **mean** Optional

- attribute: **median** ^{Optional}
- attribute: **minimum** ^{Optional}
- attribute: **minimum_scaled_value** ^{Optional}
- attribute: **standard_deviation** ^{Optional}

- **End** Object_Statistics

- **Special_Constants - occurs 0 to 1 times**

  description: **The Special Constants class provides a set of values used to indicate special cases that occur in the data.**
  role: **Concrete**
  attribute: **error_constant** ^{Optional}
  attribute: **high_instrument_saturation** value: **-32765, 255, 3, 65534, FF7FFFFE, FFFCFFFF** ^{Optional}

  attribute: **high_representation_saturation** value: **-32764, 255, 4, 65535, FF7FFFFF, FFFBFFFF** ^{Optional}

  attribute: **invalid_constant** ^{Optional}
  attribute: **low_instrument_saturation** value: **-32766, 0, 2, FF7FFFFD, FFFDFFFF** ^{Optional}
  attribute: **low_representation_saturation** value: **-32767, 1, 16#FF7FFFFC#, 16#FFFEFFFF#** ^{Optional}

  attribute: **missing_constant** ^{Optional}
  attribute: **not_applicable_constant** ^{Optional}
  attribute: **saturated_constant** ^{Optional}
  attribute: **unknown_constant** ^{Optional}
  attribute: **valid_maximum** value: **254, 32767, 65522** ^{Optional}
  attribute: **valid_minimum** value: **-32752, 1, 3, 5, FF7FFFFA, FFEFFFFF** ^{Optional}

  - **End** Special_Constants
- **End** Array_2D_Image

- **Array_2D_Map - occurs 1 to * times**

  description: **The Array 2D Map class is an extension of the Array 2D class and defines a two dimensional map.**
  role: **Concrete**
  attribute: **axes** value: **2**
  attribute: **axis_index_order** value: **Last Index Fastest**
  attribute: **description** ^{Optional}
  attribute: **local_identifier** ^{Optional}
  attribute: **name** ^{Optional}
  attribute: **offset**

  - **Axis_Array occurs 2 times**

    description: **The Axis Array class is used as a component of the array class and defines an axis of the array.**
    role: **Concrete**
    attribute: **axis_name**
    attribute: **elements**
    attribute: **local_identifier** ^{Optional}
    attribute: **sequence_number**
    attribute: **unit** ^{Optional}

    - **Band_Bin_Set - occurs 0 to 1 times**

      description: **The Band_Bin_Set class contains the spectral characteristics for all the spectral bands in a qube.**
      role: **Concrete**

      - **Band_Bin - occurs 1 to * times**

        description: **The Band_Bin class specifies the characteristics of an individual spectral band in a spectral qube.**
        role: **Concrete**
        attribute: **band_number**
        attribute: **band_width**
        attribute: **center_wavelength**
        attribute: **detector_number** ^{Optional}
        attribute: **filter_number** ^{Optional}
        attribute: **grating_position** ^{Optional}

attribute: **original_band** ^{Optional}

attribute: **scaling_factor** ^{Optional}

attribute: **standard_deviation** ^{Optional}

attribute: **value_offset** ^{Optional}

- **End** Band_Bin
- **End** Band_Bin_Set
- **End** Axis_Array

- **Display_2D_Image - occurs 0 to 1 times**

  description: **The Display_2D_Image class provides attributes to enable the display of a 2 dimensional image.**
  role: **Concrete**
  attribute: **line_display_direction** value: **Down, Up**
  attribute: **sample_display_direction** value: **Right**

- **End** Display_2D_Image

- **Element_Array occurs 1 times**

  description: **The Element Array class is used as a component of the array class and defines an element of the array.**
  role: **Concrete**
  attribute: **data_type** value: **ComplexLSB16, ComplexLSB8, ComplexMSB16, ComplexMSB8, IEEE754LSBDouble, IEEE754LSBSingle, IEEE754MSBDouble, IEEE754MSBSingle, SignedBitString, SignedByte, SignedLSB2, SignedLSB4, SignedLSB8, SignedMSB2, SignedMSB4, SignedMSB8, UnsignedBitString, UnsignedByte, UnsignedLSB2, UnsignedLSB4, UnsignedLSB8, UnsignedMSB2, UnsignedMSB4, UnsignedMSB8**
  attribute: **scaling_factor** ^{Optional}
  attribute: **unit** ^{Optional}
  attribute: **value_offset** ^{Optional}

- **End** Element_Array

- **Object_Statistics - occurs 0 to 1 times**

  description: **The Object Statistics class provides a set of values that provide metrics about the object.**
  role: **Concrete**
  attribute: **bit_mask** ^{Optional}
  attribute: **description** ^{Optional}
  attribute: **local_identifier** ^{Optional}
  attribute: **maximum** ^{Optional}
  attribute: **maximum_scaled_value** ^{Optional}
  attribute: **md5_checksum** ^{Optional}
  attribute: **mean** ^{Optional}
  attribute: **median** ^{Optional}
  attribute: **minimum** ^{Optional}
  attribute: **minimum_scaled_value** ^{Optional}
  attribute: **standard_deviation** ^{Optional}

- **End** Object_Statistics

- **Special_Constants - occurs 0 to 1 times**

  description: **The Special Constants class provides a set of values used to indicate special cases that occur in the data.**
  role: **Concrete**
  attribute: **error_constant** ^{Optional}
  attribute: **high_instrument_saturation** value: **-32765, 255, 3, 65534, FF7FFFFE, FFFCFFFF** ^{Optional}

  attribute: **high_representation_saturation** value: **-32764, 255, 4, 65535, FF7FFFFF, FFFBFFFF** ^{Optional}

  attribute: **invalid_constant** ^{Optional}
  attribute: **low_instrument_saturation** value: **-32766, 0, 2, FF7FFFFD, FFFDFFFF** ^{Optional}
  attribute: **low_representation_saturation** value: **-32767, 1, 16#FF7FFFFC#, 16#FFFEFFFF#** ^{Optional}

  attribute: **missing_constant** ^{Optional}
  attribute: **not_applicable_constant** ^{Optional}
  attribute: **saturated_constant** ^{Optional}

attribute: **unknown_constant** ^{Optional}
attribute: **valid_maximum** value: **254, 32767, 65522** ^{Optional}
attribute: **valid_minimum** value: **-32752, 1, 3, 5, FF7FFFFA, FFEFFFFF** ^{Optional}

- **End** Special_Constants
- **End** Array_2D_Map

- **Array_2D_Spectrum - occurs 1 to * times**

  description: **The Array 2D Spectrum class is an extension of the Array 2D class and defines a two dimensional spectrum.**
  role: **Concrete**
  attribute: **axes** value: **2**
  attribute: **axis_index_order** value: **Last Index Fastest**
  attribute: **description** ^{Optional}
  attribute: **local_identifier** ^{Optional}
  attribute: **name** ^{Optional}
  attribute: **offset**

  - **Axis_Array occurs 2 times**

    description: **The Axis Array class is used as a component of the array class and defines an axis of the array.**
    role: **Concrete**
    attribute: **axis_name**
    attribute: **elements**
    attribute: **local_identifier** ^{Optional}
    attribute: **sequence_number**
    attribute: **unit** ^{Optional}

    - **Band_Bin_Set - occurs 0 to 1 times**

      description: **The Band_Bin_Set class contains the spectral characteristics for all the spectral bands in a qube.**
      role: **Concrete**

      - **Band_Bin - occurs 1 to * times**

        description: **The Band_Bin class specifies the characteristics of an individual spectral band in a spectral qube.**
        role: **Concrete**
        attribute: **band_number**
        attribute: **band_width**
        attribute: **center_wavelength**
        attribute: **detector_number** ^{Optional}
        attribute: **filter_number** ^{Optional}
        attribute: **grating_position** ^{Optional}
        attribute: **original_band** ^{Optional}
        attribute: **scaling_factor** ^{Optional}
        attribute: **standard_deviation** ^{Optional}
        attribute: **value_offset** ^{Optional}

        - **End** Band_Bin
      - **End** Band_Bin_Set
  - **End** Axis_Array

  - **Display_2D_Image - occurs 0 to 1 times**

    description: **The Display_2D_Image class provides attributes to enable the display of a 2 dimensional image.**
    role: **Concrete**
    attribute: **line_display_direction** value: **Down, Up**
    attribute: **sample_display_direction** value: **Right**

  - **End** Display_2D_Image

  - **Element_Array occurs 1 times**

    description: **The Element Array class is used as a component of the array class and defines an element of the array.**
    role: **Concrete**
    attribute: **data_type** value: **ComplexLSB16, ComplexLSB8, ComplexMSB16, ComplexMSB8, IEEE754LSBDouble, IEEE754LSBSingle, IEEE754MSBDouble, IEEE754MSBSingle,**

SignedBitString, SignedByte, SignedLSB2, SignedLSB4, SignedLSB8, SignedMSB2, SignedMSB4, SignedMSB8, UnsignedBitString, UnsignedByte, UnsignedLSB2, UnsignedLSB4, UnsignedLSB8, UnsignedMSB2, UnsignedMSB4, UnsignedMSB8
attribute: **scaling_factor** Optional
attribute: **unit** Optional
attribute: **value_offset** Optional

- **End** Element_Array

- **Object_Statistics - occurs 0 to 1 times**

  description: **The Object Statistics class provides a set of values that provide metrics about the object.**
  role: **Concrete**
  attribute: **bit_mask** Optional
  attribute: **description** Optional
  attribute: **local_identifier** Optional
  attribute: **maximum** Optional
  attribute: **maximum_scaled_value** Optional
  attribute: **md5_checksum** Optional
  attribute: **mean** Optional
  attribute: **median** Optional
  attribute: **minimum** Optional
  attribute: **minimum_scaled_value** Optional
  attribute: **standard_deviation** Optional

- **End** Object_Statistics

- **Special_Constants - occurs 0 to 1 times**

  description: **The Special Constants class provides a set of values used to indicate special cases that occur in the data.**
  role: **Concrete**
  attribute: **error_constant** Optional
  attribute: **high_instrument_saturation** value: **-32765, 255, 3, 65534, FF7FFFFE, FFFCFFFF** Optional

  attribute: **high_representation_saturation** value: **-32764, 255, 4, 65535, FF7FFFFF, FFFBFFFF** Optional

  attribute: **invalid_constant** Optional
  attribute: **low_instrument_saturation** value: **-32766, 0, 2, FF7FFFFD, FFFDFFFF** Optional
  attribute: **low_representation_saturation** value: **-32767, 1, 16#FF7FFFFC#, 16#FFFEFFFF#** Optional

  attribute: **missing_constant** Optional
  attribute: **not_applicable_constant** Optional
  attribute: **saturated_constant** Optional
  attribute: **unknown_constant** Optional
  attribute: **valid_maximum** value: **254, 32767, 65522** Optional
  attribute: **valid_minimum** value: **-32752, 1, 3, 5, FF7FFFFA, FFEFFFFF** Optional

  - **End** Special_Constants
- **End** Array_2D_Spectrum

- **Array_3D - occurs 1 to * times**

  description: **The Array 3D class is the parent class for all three dimensional array based classes.**
  role: **Concrete**
  attribute: **axes** value: **3**
  attribute: **axis_index_order** value: **Last Index Fastest**
  attribute: **description** Optional
  attribute: **local_identifier** Optional
  attribute: **name** Optional
  attribute: **offset**

  - **Axis_Array occurs 3 times**

    description: **The Axis Array class is used as a component of the array class and defines an axis of the array.**
    role: **Concrete**
    attribute: **axis_name**
    attribute: **elements**
    attribute: **local_identifier** Optional

attribute: **sequence_number**
attribute: **unit** Optional

- **Band_Bin_Set - occurs 0 to 1 times**

    description: **The Band_Bin_Set class contains the spectral characteristics for all the spectral bands in a qube.**
    role: **Concrete**

    - **Band_Bin - occurs 1 to * times**

        description: **The Band_Bin class specifies the characteristics of an individual spectral band in a spectral qube.**
        role: **Concrete**
        attribute: **band_number**
        attribute: **band_width**
        attribute: **center_wavelength**
        attribute: **detector_number** Optional
        attribute: **filter_number** Optional
        attribute: **grating_position** Optional
        attribute: **original_band** Optional
        attribute: **scaling_factor** Optional
        attribute: **standard_deviation** Optional
        attribute: **value_offset** Optional

    - **End** Band_Bin
- **End** Band_Bin_Set
- **End** Axis_Array

- **Element_Array occurs 1 times**

    description: **The Element Array class is used as a component of the array class and defines an element of the array.**
    role: **Concrete**
    attribute: **data_type** value: **ComplexLSB16, ComplexLSB8, ComplexMSB16, ComplexMSB8, IEEE754LSBDouble, IEEE754LSBSingle, IEEE754MSBDouble, IEEE754MSBSingle, SignedBitString, SignedByte, SignedLSB2, SignedLSB4, SignedLSB8, SignedMSB2, SignedMSB4, SignedMSB8, UnsignedBitString, UnsignedByte, UnsignedLSB2, UnsignedLSB4, UnsignedLSB8, UnsignedMSB2, UnsignedMSB4, UnsignedMSB8**
    attribute: **scaling_factor** Optional
    attribute: **unit** Optional
    attribute: **value_offset** Optional

- **End** Element_Array

- **Object_Statistics - occurs 0 to 1 times**

    description: **The Object Statistics class provides a set of values that provide metrics about the object.**
    role: **Concrete**
    attribute: **bit_mask** Optional
    attribute: **description** Optional
    attribute: **local_identifier** Optional
    attribute: **maximum** Optional
    attribute: **maximum_scaled_value** Optional
    attribute: **md5_checksum** Optional
    attribute: **mean** Optional
    attribute: **median** Optional
    attribute: **minimum** Optional
    attribute: **minimum_scaled_value** Optional
    attribute: **standard_deviation** Optional

- **End** Object_Statistics

- **Special_Constants - occurs 0 to 1 times**

    description: **The Special Constants class provides a set of values used to indicate special cases that occur in the data.**
    role: **Concrete**
    attribute: **error_constant** Optional
    attribute: **high_instrument_saturation** value: **-32765, 255, 3, 65534, FF7FFFFE, FFFCFFFF** Optional

attribute: **high_representation_saturation** value: **-32764, 255, 4, 65535, FF7FFFFF, FFFBFFFF** Optional

attribute: **invalid_constant** Optional

attribute: **low_instrument_saturation** value: **-32766, 0, 2, FF7FFFFD, FFFDFFFF** Optional

attribute: **low_representation_saturation** value: **-32767, 1, 16#FF7FFFFC#, 16#FFFEFFFF#** Optional

attribute: **missing_constant** Optional

attribute: **not_applicable_constant** Optional

attribute: **saturated_constant** Optional

attribute: **unknown_constant** Optional

attribute: **valid_maximum** value: **254, 32767, 65522** Optional

attribute: **valid_minimum** value: **-32752, 1, 3, 5, FF7FFFFA, FFEFFFFF** Optional

- **End** Special_Constants
- **End** Array_3D

- **Array_3D_Image - occurs 1 to * times**

  description: **The Array 3D Image class is an extension of the Array 3D class and defines a three dimensional image.**
  role: **Concrete**
  attribute: **axes** value: **3**
  attribute: **axis_index_order** value: **Last Index Fastest**
  attribute: **description** Optional
  attribute: **local_identifier** Optional
  attribute: **name** Optional
  attribute: **offset**

  - **Axis_Array occurs 3 times**

    description: **The Axis Array class is used as a component of the array class and defines an axis of the array.**
    role: **Concrete**
    attribute: **axis_name**
    attribute: **elements**
    attribute: **local_identifier** Optional
    attribute: **sequence_number**
    attribute: **unit** Optional

    - **Band_Bin_Set - occurs 0 to 1 times**

      description: **The Band_Bin_Set class contains the spectral characteristics for all the spectral bands in a qube.**
      role: **Concrete**

      - **Band_Bin - occurs 1 to * times**

        description: **The Band_Bin class specifies the characteristics of an individual spectral band in a spectral qube.**
        role: **Concrete**
        attribute: **band_number**
        attribute: **band_width**
        attribute: **center_wavelength**
        attribute: **detector_number** Optional
        attribute: **filter_number** Optional
        attribute: **grating_position** Optional
        attribute: **original_band** Optional
        attribute: **scaling_factor** Optional
        attribute: **standard_deviation** Optional
        attribute: **value_offset** Optional

        - **End** Band_Bin
      - **End** Band_Bin_Set
    - **End** Axis_Array

  - **Element_Array occurs 1 times**

    description: **The Element Array class is used as a component of the array class and defines an element of the array.**
    role: **Concrete**
    attribute: **data_type** value: **ComplexLSB16, ComplexLSB8, ComplexMSB16, ComplexMSB8, IEEE754LSBDouble, IEEE754LSBSingle, IEEE754MSBDouble, IEEE754MSBSingle,**

SignedBitString, SignedByte, SignedLSB2, SignedLSB4, SignedLSB8, SignedMSB2, SignedMSB4, SignedMSB8, UnsignedBitString, UnsignedByte, UnsignedLSB2, UnsignedLSB4, UnsignedLSB8, UnsignedMSB2, UnsignedMSB4, UnsignedMSB8
attribute: **scaling_factor** Optional
attribute: **unit** Optional
attribute: **value_offset** Optional

- **End** Element_Array

- **Object_Statistics - occurs 0 to 1 times**

  description: **The Object Statistics class provides a set of values that provide metrics about the object.**
  role: **Concrete**
  attribute: **bit_mask** Optional
  attribute: **description** Optional
  attribute: **local_identifier** Optional
  attribute: **maximum** Optional
  attribute: **maximum_scaled_value** Optional
  attribute: **md5_checksum** Optional
  attribute: **mean** Optional
  attribute: **median** Optional
  attribute: **minimum** Optional
  attribute: **minimum_scaled_value** Optional
  attribute: **standard_deviation** Optional

  - **End** Object_Statistics

- **Special_Constants - occurs 0 to 1 times**

  description: **The Special Constants class provides a set of values used to indicate special cases that occur in the data.**
  role: **Concrete**
  attribute: **error_constant** Optional
  attribute: **high_instrument_saturation** value: **-32765, 255, 3, 65534, FF7FFFFE, FFFCFFFF** Optional

  attribute: **high_representation_saturation** value: **-32764, 255, 4, 65535, FF7FFFFF, FFFBFFFF** Optional

  attribute: **invalid_constant** Optional
  attribute: **low_instrument_saturation** value: **-32766, 0, 2, FF7FFFFD, FFFDFFFF** Optional
  attribute: **low_representation_saturation** value: **-32767, 1, 16#FF7FFFFC#, 16#FFFEFFFF#** Optional

  attribute: **missing_constant** Optional
  attribute: **not_applicable_constant** Optional
  attribute: **saturated_constant** Optional
  attribute: **unknown_constant** Optional
  attribute: **valid_maximum** value: **254, 32767, 65522** Optional
  attribute: **valid_minimum** value: **-32752, 1, 3, 5, FF7FFFFA, FFEFFFFF** Optional

    - **End** Special_Constants
- **End** Array_3D_Image

- **Array_3D_Movie - occurs 1 to * times**

  description: **The Array 3D Movie class is an extension of the Array 3D class and defines a movie as a set of two dimensional images in a time series.**
  role: **Concrete**
  attribute: **axes** value: **3**
  attribute: **axis_index_order** value: **Last Index Fastest**
  attribute: **description** Optional
  attribute: **local_identifier** Optional
  attribute: **name** Optional
  attribute: **offset**

  - **Axis_Array occurs 3 times**

    description: **The Axis Array class is used as a component of the array class and defines an axis of the array.**
    role: **Concrete**
    attribute: **axis_name**
    attribute: **elements**

attribute: **local_identifier** ^{Optional}
attribute: **sequence_number**
attribute: **unit** ^{Optional}

- **Band_Bin_Set - occurs 0 to 1 times**

  description: **The Band_Bin_Set class contains the spectral characteristics for all the spectral bands in a qube.**
  role: **Concrete**

  - **Band_Bin - occurs 1 to * times**

    description: **The Band_Bin class specifies the characteristics of an individual spectral band in a spectral qube.**
    role: **Concrete**
    attribute: **band_number**
    attribute: **band_width**
    attribute: **center_wavelength**
    attribute: **detector_number** ^{Optional}
    attribute: **filter_number** ^{Optional}
    attribute: **grating_position** ^{Optional}
    attribute: **original_band** ^{Optional}
    attribute: **scaling_factor** ^{Optional}
    attribute: **standard_deviation** ^{Optional}
    attribute: **value_offset** ^{Optional}

    - **End** Band_Bin
  - **End** Band_Bin_Set
- **End** Axis_Array

- **Element_Array occurs 1 times**

  description: **The Element Array class is used as a component of the array class and defines an element of the array.**
  role: **Concrete**
  attribute: **data_type** value: **ComplexLSB16, ComplexLSB8, ComplexMSB16, ComplexMSB8, IEEE754LSBDouble, IEEE754LSBSingle, IEEE754MSBDouble, IEEE754MSBSingle, SignedBitString, SignedByte, SignedLSB2, SignedLSB4, SignedLSB8, SignedMSB2, SignedMSB8, UnsignedBitString, UnsignedByte, UnsignedLSB2, UnsignedLSB4, UnsignedLSB8, UnsignedMSB2, UnsignedMSB4, UnsignedMSB8**
  attribute: **scaling_factor** ^{Optional}
  attribute: **unit** ^{Optional}
  attribute: **value_offset** ^{Optional}

- **End** Element_Array

- **Object_Statistics - occurs 0 to 1 times**

  description: **The Object Statistics class provides a set of values that provide metrics about the object.**
  role: **Concrete**
  attribute: **bit_mask** ^{Optional}
  attribute: **description** ^{Optional}
  attribute: **local_identifier** ^{Optional}
  attribute: **maximum** ^{Optional}
  attribute: **maximum_scaled_value** ^{Optional}
  attribute: **md5_checksum** ^{Optional}
  attribute: **mean** ^{Optional}
  attribute: **median** ^{Optional}
  attribute: **minimum** ^{Optional}
  attribute: **minimum_scaled_value** ^{Optional}
  attribute: **standard_deviation** ^{Optional}

- **End** Object_Statistics

- **Special_Constants - occurs 0 to 1 times**

  description: **The Special Constants class provides a set of values used to indicate special cases that occur in the data.**
  role: **Concrete**
  attribute: **error_constant** ^{Optional}
  attribute: **high_instrument_saturation** value: **-32765, 255, 3, 65534, FF7FFFFE, FFFCFFFF**

Optional

attribute: **high_representation_saturation** value: **-32764, 255, 4, 65535, FF7FFFFF, FFFBFFFF**
Optional

attribute: **invalid_constant** Optional

attribute: **low_instrument_saturation** value: **-32766, 0, 2, FF7FFFFD, FFFDFFFF** Optional

attribute: **low_representation_saturation** value: **-32767, 1, 16#FF7FFFFC#, 16#FFFEFFFF#**
Optional

attribute: **missing_constant** Optional

attribute: **not_applicable_constant** Optional

attribute: **saturated_constant** Optional

attribute: **unknown_constant** Optional

attribute: **valid_maximum** value: **254, 32767, 65522** Optional

attribute: **valid_minimum** value: **-32752, 1, 3, 5, FF7FFFFA, FFEFFFFF** Optional

- **End** Special_Constants
- **End** Array_3D_Movie

- **Array_3D_Spectrum - occurs 1 to * times**

  description: **The Array 3D Spectrum class is an extension of the Array 3D class and defines a three dimensional spectrum.**
  role: **Concrete**
  attribute: **axes** value: **3**
  attribute: **axis_index_order** value: **Last Index Fastest**
  attribute: **description** Optional
  attribute: **local_identifier** Optional
  attribute: **name** Optional
  attribute: **offset**

  - **Axis_Array occurs 3 times**

    description: **The Axis Array class is used as a component of the array class and defines an axis of the array.**
    role: **Concrete**
    attribute: **axis_name**
    attribute: **elements**
    attribute: **local_identifier** Optional
    attribute: **sequence_number**
    attribute: **unit** Optional

    - **Band_Bin_Set - occurs 0 to 1 times**

      description: **The Band_Bin_Set class contains the spectral characteristics for all the spectral bands in a qube.**
      role: **Concrete**

      - **Band_Bin - occurs 1 to * times**

        description: **The Band_Bin class specifies the characteristics of an individual spectral band in a spectral qube.**
        role: **Concrete**
        attribute: **band_number**
        attribute: **band_width**
        attribute: **center_wavelength**
        attribute: **detector_number** Optional
        attribute: **filter_number** Optional
        attribute: **grating_position** Optional
        attribute: **original_band** Optional
        attribute: **scaling_factor** Optional
        attribute: **standard_deviation** Optional
        attribute: **value_offset** Optional

        - **End** Band_Bin
      - **End** Band_Bin_Set
  - **End** Axis_Array

  - **Element_Array occurs 1 times**

    description: **The Element Array class is used as a component of the array class and defines an element of the array.**
    role: **Concrete**
    attribute: **data_type** value: **ComplexLSB16, ComplexLSB8, ComplexMSB16, ComplexMSB8,**

IEEE754LSBDouble, IEEE754LSBSingle, IEEE754MSBDouble, IEEE754MSBSingle, SignedBitString, SignedByte, SignedLSB2, SignedLSB4, SignedLSB8, SignedMSB2, SignedMSB4, SignedMSB8, UnsignedBitString, UnsignedByte, UnsignedLSB2, UnsignedLSB4, UnsignedLSB8, UnsignedMSB2, UnsignedMSB4, UnsignedMSB8

attribute: **scaling_factor** Optional

attribute: **unit** Optional

attribute: **value_offset** Optional

- **End** Element_Array

- **Object_Statistics - occurs 0 to 1 times**

  description: **The Object Statistics class provides a set of values that provide metrics about the object.**
  role: **Concrete**
  attribute: **bit_mask** Optional
  attribute: **description** Optional
  attribute: **local_identifier** Optional
  attribute: **maximum** Optional
  attribute: **maximum_scaled_value** Optional
  attribute: **md5_checksum** Optional
  attribute: **mean** Optional
  attribute: **median** Optional
  attribute: **minimum** Optional
  attribute: **minimum_scaled_value** Optional
  attribute: **standard_deviation** Optional

- **End** Object_Statistics

- **Special_Constants - occurs 0 to 1 times**

  description: **The Special Constants class provides a set of values used to indicate special cases that occur in the data.**
  role: **Concrete**
  attribute: **error_constant** Optional
  attribute: **high_instrument_saturation** value: **-32765, 255, 3, 65534, FF7FFFFE, FFFCFFFF** Optional

  attribute: **high_representation_saturation** value: **-32764, 255, 4, 65535, FF7FFFFF, FFFBFFFF** Optional

  attribute: **invalid_constant** Optional
  attribute: **low_instrument_saturation** value: **-32766, 0, 2, FF7FFFFD, FFFDFFFF** Optional
  attribute: **low_representation_saturation** value: **-32767, 1, 16#FF7FFFFC#, 16#FFFEFFFF#** Optional

  attribute: **missing_constant** Optional
  attribute: **not_applicable_constant** Optional
  attribute: **saturated_constant** Optional
  attribute: **unknown_constant** Optional
  attribute: **valid_maximum** value: **254, 32767, 65522** Optional
  attribute: **valid_minimum** value: **-32752, 1, 3, 5, FF7FFFFA, FFEFFFFF** Optional

  - **End** Special_Constants
- **End** Array_3D_Spectrum

- **Encoded_Header - occurs 1 to * times**

  description: **The Encoded Header class describes a header that has been encoded using an encoding scheme that is compliant to an external standard.**
  role: **Concrete**
  attribute: **description** Optional
  attribute: **encoding_standard_id** value: **TIFF**
  attribute: **local_identifier** Optional
  attribute: **name** Optional
  attribute: **object_length** Optional
  attribute: **offset**

- **End** Encoded_Header

- **Encoded_Image - occurs 1 to * times**

  description: **The Encoded Image class is used for ancillary images in standard formats, such as JPEG.**

role: **Concrete**
　　attribute: **description** ^{Optional}
　　attribute: **encoding_standard_id** value: **GIF, J2C, JPEG, PDF, PDF/A, PNG, TIFF**
　　attribute: **local_identifier** ^{Optional}
　　attribute: **name** ^{Optional}
　　attribute: **object_length** ^{Optional}
　　attribute: **offset**

- **End** Encoded_Image

- **File occurs 1 times**

　　description: **The File class consists of attributes that describe a file in a data store.**
　　role: **Concrete**
　　attribute: **comment** ^{Optional}
　　attribute: **creation_date_time** ^{Optional}
　　attribute: **file_name**
　　attribute: **file_size** ^{Optional}
　　attribute: **local_identifier** ^{Optional}
　　attribute: **md5_checksum** ^{Optional}
　　attribute: **records** ^{Optional}

- **End** File

- **Header - occurs 1 to * times**

　　description: **The Header class describes a data object header.**
　　role: **Concrete**
　　attribute: **description** ^{Optional}
　　attribute: **local_identifier** ^{Optional}
　　attribute: **name** ^{Optional}
　　attribute: **object_length**
　　attribute: **offset**
　　attribute: **parsing_standard_id** value: **7-Bit ASCII Text, CDF 3.4 ISTP/IACG, FITS 3.0, ISIS2, ISIS3, PDS DSV 1, PDS ODL 2, PDS3, Pre-PDS3, UTF-8 Text, VICAR1, VICAR2**

- **End** Header

- **Stream_Text - occurs 1 to * times**

　　description: **The Stream text class defines a text object.**
　　role: **Concrete**
　　attribute: **description** ^{Optional}
　　attribute: **local_identifier** ^{Optional}
　　attribute: **name** ^{Optional}
　　attribute: **object_length** ^{Optional}
　　attribute: **offset**
　　attribute: **parsing_standard_id**
　　attribute: **record_delimiter** value: **carriage-return line-feed**

- **End** Stream_Text

- **Table_Binary - occurs 1 to * times**

　　description: **The Table Binary class is an extension of table base and defines a simple binary table.**
　　role: **Concrete**
　　attribute: **description** ^{Optional}
　　attribute: **local_identifier** ^{Optional}
　　attribute: **name** ^{Optional}
　　attribute: **offset**
　　attribute: **record_delimiter** ^{Optional}
　　attribute: **records**

　　- **Record_Binary occurs 1 times**

　　　　description: **The Record_Binary class is a component of the table class and defines a record of the table.**
　　　　role: **Concrete**
　　　　attribute: **fields**
　　　　attribute: **groups**
　　　　attribute: **record_length**

- **Field_Binary - occurs 1 to * times**

  description: **The Field_Binary class defines a field of a binary record or a field of a binary group.**
  role: **Concrete**
  attribute: **data_type** value: **ASCII_AnyURI, ASCII_Boolean, ASCII_DOI, ASCII_Date, ASCII_Date_DOY, ASCII_Date_Time, ASCII_Date_Time_DOY, ASCII_Date_Time_UTC, ASCII_Date_Time_YMD, ASCII_Date_YMD, ASCII_Directory_Path_Name, ASCII_File_Name, ASCII_File_Specification_Name, ASCII_Integer, ASCII_LID, ASCII_LIDVID, ASCII_LIDVID_LID, ASCII_MD5_Checksum, ASCII_NonNegative_Integer, ASCII_Numeric_Base16, ASCII_Numeric_Base2, ASCII_Numeric_Base8, ASCII_Real, ASCII_String, ASCII_Time, ASCII_VID, ComplexLSB16, ComplexLSB8, ComplexMSB16, ComplexMSB8, IEEE754LSBDouble, IEEE754LSBSingle, IEEE754MSBDouble, IEEE754MSBSingle, SignedBitString, SignedByte, SignedLSB2, SignedLSB4, SignedLSB8, SignedMSB2, SignedMSB4, SignedMSB8, UTF8_String, UnsignedBitString, UnsignedByte, UnsignedLSB2, UnsignedLSB4, UnsignedLSB8, UnsignedMSB2, UnsignedMSB4, UnsignedMSB8**
  attribute: **description** Optional
  attribute: **field_format** Optional
  attribute: **field_length**
  attribute: **field_location**
  attribute: **field_number** Optional
  attribute: **name**
  attribute: **scaling_factor** Optional
  attribute: **unit** Optional
  attribute: **value_offset** Optional

  - **Field_Statistics - occurs 0 to 1 times**

    description: **The Field Statistics class provides a set of metrics for a column formed by a field in a repeating record.**
    role: **Concrete**
    attribute: **description** Optional
    attribute: **local_identifier** Optional
    attribute: **maximum** Optional
    attribute: **mean** Optional
    attribute: **median** Optional
    attribute: **minimum** Optional
    attribute: **standard_deviation** Optional

  - **End** Field_Statistics

  - **Packed_Data_Fields - occurs 0 to 1 times**

    description: **The Packed_Data_Fields class contains field definitions for extracting packed data from the associated byte string field.**
    role: **Concrete**
    attribute: **bit_fields**
    attribute: **description** Optional

    - **Field_Bit - occurs 1 to * times**

      description: **The Field_Bit class provides parameters for extracting one field out of a string of bytes which contains packed data (that is, data values either smaller than a single byte, or crossing byte boundaries, or both.**
      role: **Concrete**
      attribute: **data_type** value: **SignedBitString, UnsignedBitString**
      attribute: **description** Optional
      attribute: **field_format** Optional
      attribute: **field_number** Optional
      attribute: **name**
      attribute: **scaling_factor** Optional
      attribute: **start_bit**
      attribute: **stop_bit**
      attribute: **unit** Optional
      attribute: **value_offset** Optional

      - **Special_Constants - occurs 0 to 1 times**

        description: **The Special Constants class provides a set of**

values used to indicate special cases that occur in the data.
role: **Concrete**
attribute: **error_constant** ^{Optional}
attribute: **high_instrument_saturation** value: **-32765, 255, 3, 65534, FF7FFFFE, FFFCFFFF** ^{Optional}
attribute: **high_representation_saturation** value: **-32764, 255, 4, 65535, FF7FFFFF, FFFBFFFF** ^{Optional}
attribute: **invalid_constant** ^{Optional}
attribute: **low_instrument_saturation** value: **-32766, 0, 2, FF7FFFFD, FFFDFFFF** ^{Optional}
attribute: **low_representation_saturation** value: **-32767, 1, 16#FF7FFFFC#, 16#FFFEFFFF#** ^{Optional}
attribute: **missing_constant** ^{Optional}
attribute: **not_applicable_constant** ^{Optional}
attribute: **saturated_constant** ^{Optional}
attribute: **unknown_constant** ^{Optional}
attribute: **valid_maximum** value: **254, 32767, 65522** ^{Optional}
attribute: **valid_minimum** value: **-32752, 1, 3, 5, FF7FFFFA, FFEFFFFF** ^{Optional}

- **End** Special_Constants
- **End** Field_Bit
- **End** Packed_Data_Fields

- **Special_Constants - occurs 0 to 1 times**

  description: **The Special Constants class provides a set of values used to indicate special cases that occur in the data.**
  role: **Concrete**
  attribute: **error_constant** ^{Optional}
  attribute: **high_instrument_saturation** value: **-32765, 255, 3, 65534, FF7FFFFE, FFFCFFFF** ^{Optional}
  attribute: **high_representation_saturation** value: **-32764, 255, 4, 65535, FF7FFFFF, FFFBFFFF** ^{Optional}
  attribute: **invalid_constant** ^{Optional}
  attribute: **low_instrument_saturation** value: **-32766, 0, 2, FF7FFFFD, FFFDFFFF** ^{Optional}
  attribute: **low_representation_saturation** value: **-32767, 1, 16#FF7FFFFC#, 16#FFFEFFFF#** ^{Optional}
  attribute: **missing_constant** ^{Optional}
  attribute: **not_applicable_constant** ^{Optional}
  attribute: **saturated_constant** ^{Optional}
  attribute: **unknown_constant** ^{Optional}
  attribute: **valid_maximum** value: **254, 32767, 65522** ^{Optional}
  attribute: **valid_minimum** value: **-32752, 1, 3, 5, FF7FFFFA, FFEFFFFF** ^{Optional}

- **End** Special_Constants
- **End** Field_Binary

- **Group_Field_Binary - occurs 1 to * times**

  description: **The Group_Field_Binary class allows a group of table fields.**
  role: **Concrete**
  attribute: **fields**
  attribute: **group_length**
  attribute: **group_location**
  attribute: **group_number** ^{Optional}
  attribute: **groups**
  attribute: **repetitions**

  - **Field_Binary - occurs 1 to * times**

    description: **The Field_Binary class defines a field of a binary record or a field of a binary group.**
    role: **Concrete**
    attribute: **data_type** value: **ASCII_AnyURI, ASCII_Boolean, ASCII_DOI, ASCII_Date, ASCII_Date_DOY, ASCII_Date_Time, ASCII_Date_Time_DOY, ASCII_Date_Time_UTC, ASCII_Date_Time_YMD, ASCII_Date_YMD, ASCII_Directory_Path_Name, ASCII_File_Name, ASCII_File_Specification_Name, ASCII_Integer, ASCII_LID, ASCII_LIDVID, ASCII_LIDVID_LID, ASCII_MD5_Checksum, ASCII_NonNegative_Integer, ASCII_Numeric_Base16, ASCII_Numeric_Base2, ASCII_Numeric_Base8,**

ASCII_Real, ASCII_String, ASCII_Time, ASCII_VID, ComplexLSB16, ComplexLSB8, ComplexMSB16, ComplexMSB8, IEEE754LSBDouble, IEEE754LSBSingle, IEEE754MSBDouble, IEEE754MSBSingle, SignedBitString, SignedByte, SignedLSB2, SignedLSB4, SignedLSB8, SignedMSB2, SignedMSB4, SignedMSB8, UTF8_String, UnsignedBitString, UnsignedByte, UnsignedLSB2, UnsignedLSB4, UnsignedLSB8, UnsignedMSB2, UnsignedMSB4, UnsignedMSB8

attribute: **description** ^{Optional}

attribute: **field_format** ^{Optional}

attribute: **field_length**

attribute: **field_location**

attribute: **field_number** ^{Optional}

attribute: **name**

attribute: **scaling_factor** ^{Optional}

attribute: **unit** ^{Optional}

attribute: **value_offset** ^{Optional}

- **Field_Statistics - occurs 0 to 1 times**

  description: **The Field Statistics class provides a set of metrics for a column formed by a field in a repeating record.**
  role: **Concrete**
  attribute: **description** ^{Optional}
  attribute: **local_identifier** ^{Optional}
  attribute: **maximum** ^{Optional}
  attribute: **mean** ^{Optional}
  attribute: **median** ^{Optional}
  attribute: **minimum** ^{Optional}
  attribute: **standard_deviation** ^{Optional}

- **End** Field_Statistics

- **Packed_Data_Fields - occurs 0 to 1 times**

  description: **The Packed_Data_Fields class contains field definitions for extracting packed data from the associated byte string field.**
  role: **Concrete**
  attribute: **bit_fields**
  attribute: **description** ^{Optional}

  - **Field_Bit - occurs 1 to * times**

    description: **The Field_Bit class provides parameters for extracting one field out of a string of bytes which contains packed data (that is, data values either smaller than a single byte, or crossing byte boundaries, or both.**
    role: **Concrete**
    attribute: **data_type** value: **SignedBitString, UnsignedBitString**
    attribute: **description** ^{Optional}
    attribute: **field_format** ^{Optional}
    attribute: **field_number** ^{Optional}
    attribute: **name**
    attribute: **scaling_factor** ^{Optional}
    attribute: **start_bit**
    attribute: **stop_bit**
    attribute: **unit** ^{Optional}
    attribute: **value_offset** ^{Optional}

    - **Special_Constants - occurs 0 to 1 times**

      description: **The Special Constants class provides a set of values used to indicate special cases that occur in the data.**
      role: **Concrete**
      attribute: **error_constant** ^{Optional}
      attribute: **high_instrument_saturation** value: **-32765, 255, 3, 65534, FF7FFFFE, FFFCFFFF** ^{Optional}
      attribute: **high_representation_saturation** value: **-32764, 255, 4, 65535, FF7FFFFF, FFFBFFFF** ^{Optional}
      attribute: **invalid_constant** ^{Optional}
      attribute: **low_instrument_saturation** value: **-32766, 0,**

            2, FF7FFFFD, FFFDFFFF ^{Optional}
            attribute: **low_representation_saturation** value:
            -32767, 1, 16#FF7FFFFC#, 16#FFFEFFFF# ^{Optional}
            attribute: **missing_constant** ^{Optional}
            attribute: **not_applicable_constant** ^{Optional}
            attribute: **saturated_constant** ^{Optional}
            attribute: **unknown_constant** ^{Optional}
            attribute: **valid_maximum** value: **254, 32767, 65522**
            ^{Optional}

            attribute: **valid_minimum** value: **-32752, 1, 3, 5,**
            FF7FFFFA, FFEFFFFF ^{Optional}

- **End** Special_Constants
- **End** Field_Bit
- **End** Packed_Data_Fields

- **Special_Constants - occurs 0 to 1 times**

  description: **The Special Constants class provides a set of values used to indicate special cases that occur in the data.**
  role: **Concrete**
  attribute: **error_constant** ^{Optional}
  attribute: **high_instrument_saturation** value: **-32765, 255, 3, 65534, FF7FFFFE, FFFCFFFF** ^{Optional}
  attribute: **high_representation_saturation** value: **-32764, 255, 4, 65535, FF7FFFFF, FFFBFFFF** ^{Optional}
  attribute: **invalid_constant** ^{Optional}
  attribute: **low_instrument_saturation** value: **-32766, 0, 2, FF7FFFFD, FFFDFFFF** ^{Optional}
  attribute: **low_representation_saturation** value: **-32767, 1, 16#FF7FFFFC#, 16#FFFEFFFF#** ^{Optional}
  attribute: **missing_constant** ^{Optional}
  attribute: **not_applicable_constant** ^{Optional}
  attribute: **saturated_constant** ^{Optional}
  attribute: **unknown_constant** ^{Optional}
  attribute: **valid_maximum** value: **254, 32767, 65522** ^{Optional}
  attribute: **valid_minimum** value: **-32752, 1, 3, 5, FF7FFFFA, FFEFFFFF** ^{Optional}

  - **End** Special_Constants
  - **End** Field_Binary
- **End** Group_Field_Binary
- **End** Record_Binary

- **Uniformly_Sampled - occurs 0 to 1 times**

  description: **The Uniformly_Sampled class provides parameters for a uniformly sampled table.**
  role: **Concrete**
  attribute: **first_sampling_parameter_value**
  attribute: **last_sampling_parameter_value**
  attribute: **sampling_parameter_interval**
  attribute: **sampling_parameter_name**
  attribute: **sampling_parameter_scale** value: **Exponential, Linear, Logarithmic** ^{Optional}
  attribute: **sampling_parameter_unit**

  - **End** Uniformly_Sampled
- **End** Table_Binary

- **Table_Character - occurs 1 to * times**

  description: **The Table Character class is an extension of table base and defines a simple character table.**
  role: **Concrete**
  attribute: **description** ^{Optional}
  attribute: **local_identifier** ^{Optional}
  attribute: **name** ^{Optional}
  attribute: **offset**
  attribute: **record_delimiter** value: **carriage-return line-feed**
  attribute: **records**

  - **Record_Character occurs 1 times**

description: **The Record_Character class is a component of the table class and defines a record of the table.**
role: **Concrete**
attribute: **fields**
attribute: **groups**
attribute: **record_length**

- **Field_Character - occurs 1 to * times**

  description: **The Field_Character class defines a field of a character record or a field of a character group.**
  role: **Concrete**
  attribute: **data_type** value: **ASCII_AnyURI, ASCII_Boolean, ASCII_DOI, ASCII_Date, ASCII_Date_DOY, ASCII_Date_Time, ASCII_Date_Time_DOY, ASCII_Date_Time_UTC, ASCII_Date_Time_YMD, ASCII_Date_YMD, ASCII_Directory_Path_Name, ASCII_File_Name, ASCII_File_Specification_Name, ASCII_Integer, ASCII_LID, ASCII_LIDVID, ASCII_LIDVID_LID, ASCII_MD5_Checksum, ASCII_NonNegative_Integer, ASCII_Numeric_Base16, ASCII_Numeric_Base2, ASCII_Numeric_Base8, ASCII_Real, ASCII_String, ASCII_Time, ASCII_VID, UTF8_String**
  attribute: **description** Optional
  attribute: **field_format** Optional
  attribute: **field_length**
  attribute: **field_location**
  attribute: **field_number** Optional
  attribute: **name**
  attribute: **scaling_factor** Optional
  attribute: **unit** Optional
  attribute: **value_offset** Optional

  - **Field_Statistics - occurs 0 to 1 times**

    description: **The Field Statistics class provides a set of metrics for a column formed by a field in a repeating record.**
    role: **Concrete**
    attribute: **description** Optional
    attribute: **local_identifier** Optional
    attribute: **maximum** Optional
    attribute: **mean** Optional
    attribute: **median** Optional
    attribute: **minimum** Optional
    attribute: **standard_deviation** Optional

  - **End** Field_Statistics

  - **Special_Constants - occurs 0 to 1 times**

    description: **The Special Constants class provides a set of values used to indicate special cases that occur in the data.**
    role: **Concrete**
    attribute: **error_constant** Optional
    attribute: **high_instrument_saturation** value: **-32765, 255, 3, 65534, FF7FFFFE, FFFCFFFF** Optional
    attribute: **high_representation_saturation** value: **-32764, 255, 4, 65535, FF7FFFFF, FFFBFFFF** Optional
    attribute: **invalid_constant** Optional
    attribute: **low_instrument_saturation** value: **-32766, 0, 2, FF7FFFFD, FFFDFFFF** Optional
    attribute: **low_representation_saturation** value: **-32767, 1, 16#FF7FFFFC#, 16#FFFEFFFF#** Optional
    attribute: **missing_constant** Optional
    attribute: **not_applicable_constant** Optional
    attribute: **saturated_constant** Optional
    attribute: **unknown_constant** Optional
    attribute: **valid_maximum** value: **254, 32767, 65522** Optional
    attribute: **valid_minimum** value: **-32752, 1, 3, 5, FF7FFFFA, FFEFFFFF** Optional

    - **End** Special_Constants
- **End** Field_Character

- **Group_Field_Character - occurs 1 to * times**

description: **The Group_Field_Character class allows a group of table fields.**
role: **Concrete**
attribute: **fields**
attribute: **group_length**
attribute: **group_location**
attribute: **group_number** ^{Optional}
attribute: **groups**
attribute: **repetitions**

- **Field_Character - occurs 1 to * times**

  description: **The Field_Character class defines a field of a character record or a field of a character group.**
  role: **Concrete**
  attribute: **data_type** value: **ASCII_AnyURI, ASCII_Boolean, ASCII_DOI, ASCII_Date, ASCII_Date_DOY, ASCII_Date_Time, ASCII_Date_Time_DOY, ASCII_Date_Time_UTC, ASCII_Date_Time_YMD, ASCII_Date_YMD, ASCII_Directory_Path_Name, ASCII_File_Name, ASCII_File_Specification_Name, ASCII_Integer, ASCII_LID, ASCII_LIDVID, ASCII_LIDVID_LID, ASCII_MD5_Checksum, ASCII_NonNegative_Integer, ASCII_Numeric_Base16, ASCII_Numeric_Base2, ASCII_Numeric_Base8, ASCII_Real, ASCII_String, ASCII_Time, ASCII_VID, UTF8_String**
  attribute: **description** ^{Optional}
  attribute: **field_format** ^{Optional}
  attribute: **field_length**
  attribute: **field_location**
  attribute: **field_number** ^{Optional}
  attribute: **name**
  attribute: **scaling_factor** ^{Optional}
  attribute: **unit** ^{Optional}
  attribute: **value_offset** ^{Optional}

  - **Field_Statistics - occurs 0 to 1 times**

    description: **The Field Statistics class provides a set of metrics for a column formed by a field in a repeating record.**
    role: **Concrete**
    attribute: **description** ^{Optional}
    attribute: **local_identifier** ^{Optional}
    attribute: **maximum** ^{Optional}
    attribute: **mean** ^{Optional}
    attribute: **median** ^{Optional}
    attribute: **minimum** ^{Optional}
    attribute: **standard_deviation** ^{Optional}

  - **End** Field_Statistics

  - **Special_Constants - occurs 0 to 1 times**

    description: **The Special Constants class provides a set of values used to indicate special cases that occur in the data.**
    role: **Concrete**
    attribute: **error_constant** ^{Optional}
    attribute: **high_instrument_saturation** value: **-32765, 255, 3, 65534, FF7FFFFE, FFFCFFFF** ^{Optional}
    attribute: **high_representation_saturation** value: **-32764, 255, 4, 65535, FF7FFFFF, FFFBFFFF** ^{Optional}
    attribute: **invalid_constant** ^{Optional}
    attribute: **low_instrument_saturation** value: **-32766, 0, 2, FF7FFFFD, FFFDFFFF** ^{Optional}
    attribute: **low_representation_saturation** value: **-32767, 1, 16#FF7FFFFC#, 16#FFFEFFFF#** ^{Optional}
    attribute: **missing_constant** ^{Optional}
    attribute: **not_applicable_constant** ^{Optional}
    attribute: **saturated_constant** ^{Optional}
    attribute: **unknown_constant** ^{Optional}
    attribute: **valid_maximum** value: **254, 32767, 65522** ^{Optional}
    attribute: **valid_minimum** value: **-32752, 1, 3, 5, FF7FFFFA, FFEFFFFF** ^{Optional}

    - **End** Special_Constants
- **End** Field_Character

- **End** Group_Field_Character
- **End** Record_Character

- **Uniformly_Sampled - occurs 0 to 1 times**

  description: **The Uniformly_Sampled class provides parameters for a uniformly sampled table.**
  role: **Concrete**
  attribute: **first_sampling_parameter_value**
  attribute: **last_sampling_parameter_value**
  attribute: **sampling_parameter_interval**
  attribute: **sampling_parameter_name**
  attribute: **sampling_parameter_scale** value: **Exponential, Linear, Logarithmic** Optional
  attribute: **sampling_parameter_unit**

  - **End** Uniformly_Sampled
- **End** Table_Character

- **Table_Delimited - occurs 1 to * times**

  description: **The Table_Delimited class defines a simple table (spreadsheet) with delimited fields and records.**
  role: **Concrete**
  attribute: **description** Optional
  attribute: **field_delimiter** value: **comma, horizontal tab, semicolon, vertical bar**
  attribute: **local_identifier** Optional
  attribute: **name** Optional
  attribute: **object_length** Optional
  attribute: **offset**
  attribute: **parsing_standard_id** value: **PDS DSV 1**
  attribute: **record_delimiter** value: **carriage-return line-feed**
  attribute: **records**

  - **Record_Delimited occurs 1 times**

    description: **The Record_Delimited class is a component of the delimited table (spreadsheet) class and defines a record of the delimited table.**
    role: **Concrete**
    attribute: **fields**
    attribute: **groups**
    attribute: **maximum_record_length** Optional

    - **Field_Delimited - occurs 1 to * times**

      description: **The Field_Delimited class defines a field of a delimited record or a field of a delimited group.**
      role: **Concrete**
      attribute: **data_type** value: **ASCII_AnyURI, ASCII_Boolean, ASCII_DOI, ASCII_Date, ASCII_Date_DOY, ASCII_Date_Time, ASCII_Date_Time_DOY, ASCII_Date_Time_UTC, ASCII_Date_Time_YMD, ASCII_Date_YMD, ASCII_Directory_Path_Name, ASCII_File_Name, ASCII_File_Specification_Name, ASCII_Integer, ASCII_LID, ASCII_LIDVID, ASCII_LIDVID_LID, ASCII_MD5_Checksum, ASCII_NonNegative_Integer, ASCII_Numeric_Base16, ASCII_Numeric_Base2, ASCII_Numeric_Base8, ASCII_Real, ASCII_String, ASCII_Time, ASCII_VID, UTF8_String**
      attribute: **description** Optional
      attribute: **field_format** Optional
      attribute: **field_number** Optional
      attribute: **maximum_field_length** Optional
      attribute: **name**
      attribute: **scaling_factor** Optional
      attribute: **unit** Optional
      attribute: **value_offset** Optional

      - **Field_Statistics - occurs 0 to 1 times**

        description: **The Field Statistics class provides a set of metrics for a column formed by a field in a repeating record.**
        role: **Concrete**
        attribute: **description** Optional
        attribute: **local_identifier** Optional
        attribute: **maximum** Optional
        attribute: **mean** Optional

attribute: **median** ^{Optional}
attribute: **minimum** ^{Optional}
attribute: **standard_deviation** ^{Optional}

- **End** Field_Statistics

- **Special_Constants - occurs 0 to 1 times**

  description: **The Special Constants class provides a set of values used to indicate special cases that occur in the data.**
  role: **Concrete**
  attribute: **error_constant** ^{Optional}
  attribute: **high_instrument_saturation** value: **-32765, 255, 3, 65534, FF7FFFFE, FFFCFFFF** ^{Optional}
  attribute: **high_representation_saturation** value: **-32764, 255, 4, 65535, FF7FFFFF, FFFBFFFF** ^{Optional}
  attribute: **invalid_constant** ^{Optional}
  attribute: **low_instrument_saturation** value: **-32766, 0, 2, FF7FFFFD, FFFDFFFF** ^{Optional}
  attribute: **low_representation_saturation** value: **-32767, 1, 16#FF7FFFFC#, 16#FFFEFFFF#** ^{Optional}
  attribute: **missing_constant** ^{Optional}
  attribute: **not_applicable_constant** ^{Optional}
  attribute: **saturated_constant** ^{Optional}
  attribute: **unknown_constant** ^{Optional}
  attribute: **valid_maximum** value: **254, 32767, 65522** ^{Optional}
  attribute: **valid_minimum** value: **-32752, 1, 3, 5, FF7FFFFA, FFEFFFFF** ^{Optional}

  - **End** Special_Constants
- **End** Field_Delimited

- **Group_Field_Delimited - occurs 1 to * times**

  description: **The Field_Group_Delimited class allows a group of delimited fields.**
  role: **Concrete**
  attribute: **fields**
  attribute: **group_number** ^{Optional}
  attribute: **groups**
  attribute: **repetitions**

  - **Field_Delimited - occurs 1 to * times**

    description: **The Field_Delimited class defines a field of a delimited record or a field of a delimited group.**
    role: **Concrete**
    attribute: **data_type** value: **ASCII_AnyURI, ASCII_Boolean, ASCII_DOI, ASCII_Date, ASCII_Date_DOY, ASCII_Date_Time, ASCII_Date_Time_DOY, ASCII_Date_Time_UTC, ASCII_Date_Time_YMD, ASCII_Date_YMD, ASCII_Directory_Path_Name, ASCII_File_Name, ASCII_File_Specification_Name, ASCII_Integer, ASCII_LID, ASCII_LIDVID, ASCII_LIDVID_LID, ASCII_MD5_Checksum, ASCII_NonNegative_Integer, ASCII_Numeric_Base16, ASCII_Numeric_Base2, ASCII_Numeric_Base8, ASCII_Real, ASCII_String, ASCII_Time, ASCII_VID, UTF8_String**
    attribute: **description** ^{Optional}
    attribute: **field_format** ^{Optional}
    attribute: **field_number** ^{Optional}
    attribute: **maximum_field_length** ^{Optional}
    attribute: **name**
    attribute: **scaling_factor** ^{Optional}
    attribute: **unit** ^{Optional}
    attribute: **value_offset** ^{Optional}

    - **Field_Statistics - occurs 0 to 1 times**

      description: **The Field Statistics class provides a set of metrics for a column formed by a field in a repeating record.**
      role: **Concrete**
      attribute: **description** ^{Optional}
      attribute: **local_identifier** ^{Optional}
      attribute: **maximum** ^{Optional}
      attribute: **mean** ^{Optional}

attribute: **median** ^{Optional}
attribute: **minimum** ^{Optional}
attribute: **standard_deviation** ^{Optional}

- **End** Field_Statistics

- **Special_Constants - occurs 0 to 1 times**

  description: **The Special Constants class provides a set of values used to indicate special cases that occur in the data.**
  role: **Concrete**
  attribute: **error_constant** ^{Optional}
  attribute: **high_instrument_saturation** value: **-32765, 255, 3, 65534, FF7FFFFE, FFFCFFFF** ^{Optional}
  attribute: **high_representation_saturation** value: **-32764, 255, 4, 65535, FF7FFFFF, FFFBFFFF** ^{Optional}
  attribute: **invalid_constant** ^{Optional}
  attribute: **low_instrument_saturation** value: **-32766, 0, 2, FF7FFFFD, FFFDFFFF** ^{Optional}
  attribute: **low_representation_saturation** value: **-32767, 1, 16#FF7FFFFC#, 16#FFFEFFFF#** ^{Optional}
  attribute: **missing_constant** ^{Optional}
  attribute: **not_applicable_constant** ^{Optional}
  attribute: **saturated_constant** ^{Optional}
  attribute: **unknown_constant** ^{Optional}
  attribute: **valid_maximum** value: **254, 32767, 65522** ^{Optional}
  attribute: **valid_minimum** value: **-32752, 1, 3, 5, FF7FFFFA, FFEFFFFF** ^{Optional}

  - **End** Special_Constants
- **End** Field_Delimited
- **End** Group_Field_Delimited
- **End** Record_Delimited

- **Uniformly_Sampled - occurs 0 to 1 times**

  description: **The Uniformly_Sampled class provides parameters for a uniformly sampled table.**
  role: **Concrete**
  attribute: **first_sampling_parameter_value**
  attribute: **last_sampling_parameter_value**
  attribute: **sampling_parameter_interval**
  attribute: **sampling_parameter_name**
  attribute: **sampling_parameter_scale** value: **Exponential, Linear, Logarithmic** ^{Optional}
  attribute: **sampling_parameter_unit**

  - **End** Uniformly_Sampled
- **End** Table_Delimited
- **End** File_Area_Browse

- **Identification_Area occurs 1 times**

  description: **The identification area consists of attributes that identify and name an object.**
  role: **Concrete**
  attribute: **information_model_version** value: **1.1.0.1**
  attribute: **logical_identifier**
  attribute: **product_class** value: **Product_Browse**
  attribute: **title**
  attribute: **version_id**

  - **Alias_List - occurs 0 to 1 times**

    description: **The Alias_List class provides a list of paired alternate names and identifications for this product in this or some other archive or data system.**
    role: **Concrete**

    - **Alias - occurs 1 to * times**

      description: **The Alias class provides a single alternate name and identification for this product in this or some other archive or data system.**
      role: **Concrete**

- attribute: **alternate_id** ^{Optional}
- attribute: **alternate_title** ^{Optional}
- attribute: **comment** ^{Optional}

- **End** Alias
- **End** Alias_List

- **Citation_Information - occurs 0 to 1 times**

  description: **The Citation_Information class provides specific fields often used in citing the product in journal articles, abstract services, and other reference contexts.**
  role: **Concrete**
  attribute: **author_list** ^{Optional}
  attribute: **description**
  attribute: **editor_list** ^{Optional}
  attribute: **keyword** ^{Optional}
  attribute: **publication_year**

- **End** Citation_Information

- **Modification_History - occurs 0 to 1 times**

  description: **The Modification_History class tracks the history of changes made to the product once it enters the registry system.**
  role: **Concrete**

    - **Modification_Detail - occurs 1 to * times**

      description: **The Modification_Detail class provides the details of one round of modification for the product. The first, required, instance of this class documents the date the product was first registered.**
      role: **Concrete**
      attribute: **description**
      attribute: **modification_date**
      attribute: **version_id**

    - **End** Modification_Detail
  - **End** Modification_History
- **End** Identification_Area

- **Reference_List - occurs 0 to 1 times**

  description: **The Reference_List class provides lists general references and cross-references for the product. References cited elsewhere in the label need not be repeated here.**
  role: **Concrete**

    - **External_Reference - occurs 0 to * times**

      description: **The External_Reference class is used to reference a source outside the PDS registry system.**
      role: **Concrete**
      attribute: **description** ^{Optional}
      attribute: **doi** ^{Optional}
      attribute: **reference_text**

    - **End** External_Reference

    - **Internal_Reference - occurs 0 to * times**

      description: **The Internal_Reference class is used to cross-reference other products in the PDS registry system.**
      role: **Concrete**
      attribute: **comment** ^{Optional}
      attribute: **lid_reference** ^{Optional}
      attribute: **lidvid_reference** ^{Optional}
      attribute: **reference_type**

    - **End** Internal_Reference
  - **End** Reference_List
- **End** Product_Browse

- **Product_Bundle**

  description: **A Product_Bundle is an aggregate product and has a table of references to one or more collections.**
  role: **Concrete**

  - **Bundle occurs 1 times**

    description: **The Bundle class describes a collection of collections.**
    role: **Concrete**
    attribute: **bundle_type** value: **Archive, Supplemental**
    attribute: **description** Optional

  - **End** Bundle

  - **Bundle_Member_Entry - occurs 1 to * times**

    description: **The Bundle Member Entry class provides a member reference to a collection.**
    role: **Concrete**
    attribute: **lid_reference** Optional
    attribute: **lidvid_reference** Optional
    attribute: **member_status** value: **Primary, Secondary**
    attribute: **reference_type** value: **bundle_has_browse_collection, bundle_has_calibration_collection, bundle_has_context_collection, bundle_has_data_collection, bundle_has_document_collection, bundle_has_geometry_collection, bundle_has_member_collection, bundle_has_schema_collection, bundle_has_spice_kernel_collection**

  - **End** Bundle_Member_Entry

  - **Context_Area - occurs 0 to 1 times**

    description: **The Context Area provides context information for a product.**
    role: **Concrete**
    attribute: **comment** Optional

    - **Discipline_Area - occurs 0 to 1 times**

      description: **The Discipline area allows the insertion of discipline specific metadata.**
      role: **Concrete**

    - **End** Discipline_Area

    - **Investigation_Area - occurs 0 to * times**

      description: **The Investigation_Area class provides information about an investigation (mission, observing campaign or other coordinated, large-scale data collection effort).**
      role: **Concrete**
      attribute: **name**
      attribute: **type** value: **Individual Investigation, Mission, Observing Campaign, Other Investigation**

      - **Internal_Reference - occurs 1 to * times**

        description: **The Internal_Reference class is used to cross-reference other products in the PDS registry system.**
        role: **Concrete**
        attribute: **comment** Optional
        attribute: **lid_reference** Optional
        attribute: **lidvid_reference** Optional
        attribute: **reference_type**

      - **End** Internal_Reference
    - **End** Investigation_Area

    - **Mission_Area - occurs 0 to 1 times**

      description: **The mission area allows the insertion of mission specific metadata.**
      role: **Concrete**

    - **End** Mission_Area

    - **Observing_System - occurs 0 to * times**

      description: **The Observing System class describes the entire suite used to collect the data.**
      role: **Concrete**

attribute: **description** Optional
attribute: **name** Optional

- **Observing_System_Component - occurs 1 to * times**

  description: **The Observing System Component class references one or more subsystems used to collect data. A subsystem can be an instrument_host, instrument, or any other similar product. Each subsystem is categorized as either a sensor or a source. If the observing system includes both a sensor and a source, Observing System Component occurs twice (once for each type) otherwise it only occurs once.**
  role: **Concrete**
  attribute: **description** Optional
  attribute: **name**
  attribute: **type** value: **Artificial Illumination, Instrument, Laboratory, Literature Search, Naked Eye, Observatory, Spacecraft, Telescope**

  - **External_Reference - occurs 0 to * times**

    description: **The External_Reference class is used to reference a source outside the PDS registry system.**
    role: **Concrete**
    attribute: **description** Optional
    attribute: **doi** Optional
    attribute: **reference_text**

  - **End** External_Reference

  - **Internal_Reference - occurs 0 to 1 times**

    description: **The Internal_Reference class is used to cross-reference other products in the PDS registry system.**
    role: **Concrete**
    attribute: **comment** Optional
    attribute: **lid_reference** Optional
    attribute: **lidvid_reference** Optional
    attribute: **reference_type**

  - **End** Internal_Reference
- **End** Observing_System_Component
- **End** Observing_System

- **Primary_Result_Summary - occurs 0 to 1 times**

  description: **The Primary_Result_Summary class provides a high-level description of the types of products included in the collection or bundle**
  role: **Concrete**
  attribute: **data_regime** value: **Dust, Electric Field, Electrons, Far Infrared, Gamma Ray, Infrared, Ions, Magnetic Field, Microwave, Millimeter, Near Infrared, Particles, Pressure, Radio, Sub-Millimeter, Temperature, Ultraviolet, Visible, X-Ray** Optional
  attribute: **description** Optional
  attribute: **processing_level** value: **Calibrated, Derived, Partially Processed, Raw, Telemetry**
  attribute: **processing_level_id** value: **Calibrated, Derived, Partially Processed, Raw, Telemetry** Optional
  attribute: **purpose** value: **Calibration, Checkout, Engineering, Navigation, Science**
  attribute: **type** value: **Altimetry, Astrometry, Count, E/B-Field Vectors, Gravity Model, Image, Lightcurves, Map, Meteorology, Null Result, Occultation, Photometry, Physical Parameters, Polarimetry, Radiometry, Reference, Shape Model, Spectrum** Optional

  - **Science_Facets - occurs 0 to * times**

    description: **The Science_Facets class contains the science-related search facets. It is optional and may be repeated if an product has facets related to, for example, two different disciplines (as defined by the discipline_name facet). Note that Science_Facets was modeled with Discipline_Facets as a component and Discipline_Facets was modeled with Group_Facet1 and Group_Facet2 as components. This dependency hierarchy was flattened and only Science_Facets exists in the schema.**
    role: **Concrete**
    attribute: **domain** value: **Atmosphere, Heliosphere, Interior, Interstellar, Ionosphere, Magnetosphere, Surface** Optional
    attribute: **wavelength_range** value: **Far Infrared, Gamma Ray, Infrared, Microwave, Millimeter, Near Infrared, Radio, Submillimeter, Ultraviolet, Visible, X-ray** Optional

    - **Discipline_Facets occurs 1 times**

description: **The Discipline_Facets class contains the discipline-related search facets. It is required and may not be repeated. Note that Science_Facets was modeled with Discipline_Facets as a component and Discipline_Facets was modeled with Group_Facet1 and Group_Facet2 as components. This dependency hierarchy was flattened and only Science_Facets exists in the schema.**
role: **Concrete**
attribute: **discipline_name** value: **Atmospheres, Fields, Flux Measurements, Imaging, Particles, Ring-Moon Systems, Small Bodies, Spectroscopy**

- **Group_Facet1 - occurs 0 to * times**

  description: **The Group_Facet1 class contains a single facet restricted according to the value of discipline_name. It also contains zero or more subfacets restricted according to the value of the facet. Note that Science_Facets was modeled with Discipline_Facets as a component and Discipline_Facets was modeled with Group_Facet1 and Group_Facet2 as components. This dependency hierarchy was flattened and only Science_Facets exists in the schema.**
  role: **Concrete**
  attribute: **facet1** value: **2D, Color, Color Movie, Dust Study, Dynamical Properties, Electric, Electrons, Gas Study, Grayscale, Historical Reference, Ions, Lightcurve, Linear, Magnetic, Meteoritics, Meteorology, Movie, Neutrals, Photometry, Physical Properties, Polarimetry, Production Rates, Ring Compositional Map, Ring Occultation Profile, Ring Thermal Map, Satellite Astrometry, Shape Model, Spectral Cube, Spectral Image, Structure, Tabulated, Taxonomy** Optional
  attribute: **subfacet1** Optional

- **End** Group_Facet1

- **Group_Facet2 - occurs 0 to * times**

  description: **The Group_Facet2 class contains a single facet restricted according to the value of discipline_name. It also contains zero or more subfacets restricted according to the value of the facet. Note that Science_Facets was modeled with Discipline_Facets as a component and Discipline_Facets was modeled with Group_Facet1 and Group_Facet2 as components. This dependency hierarchy was flattened and only Science_Facets exists in the schema.**
  role: **Concrete**
  attribute: **facet2** value: **Background, Cosmic Ray, Energetic, Plasma, Solar Energetic, Waves** Optional
  attribute: **subfacet2** Optional

  - **End** Group_Facet2
- **End** Discipline_Facets
- **End** Science_Facets
- **End** Primary_Result_Summary

- **Target_Identification - occurs 0 to * times**

  description: **The Target_Identification class provides detailed target identification information.**
  role: **Concrete**
  attribute: **alternate_designation** Optional
  attribute: **description** Optional
  attribute: **name**
  attribute: **type** value: **Asteroid, Comet, Dust, Dwarf Planet, Galaxy, Globular Cluster, Meteorite, Meteoroid, Meteoroid Stream, Nebula, Open Cluster, Planet, Planetary Nebula, Planetary System, Plasma Cloud, Ring, Satellite, Star, Star Cluster, Sun, Terrestrial Sample, Trans-Neptunian Object**

  - **Internal_Reference - occurs 0 to 1 times**

    description: **The Internal_Reference class is used to cross-reference other products in the PDS registry system.**
    role: **Concrete**
    attribute: **comment** Optional
    attribute: **lid_reference** Optional
    attribute: **lidvid_reference** Optional
    attribute: **reference_type**

  - **End** Internal_Reference
- **End** Target_Identification

- **Time_Coordinates - occurs 0 to 1 times**

description: **The Time_Coordinates class provides a list of time coordinates.**
role: **Concrete**
attribute: **local_mean_solar_time** ^{Optional}
attribute: **local_true_solar_time** ^{Optional}
attribute: **solar_longitude** ^{Optional}
attribute: **start_date_time**
attribute: **stop_date_time**

- **End** Time_Coordinates
- **End** Context_Area

- **File_Area_Text - occurs 0 to 1 times**

  description: **The File Area Text class describes a file that contains a text stream object.**
  role: **Concrete**

  - **File occurs 1 times**

    description: **The File class consists of attributes that describe a file in a data store.**
    role: **Concrete**
    attribute: **comment** ^{Optional}
    attribute: **creation_date_time** ^{Optional}
    attribute: **file_name**
    attribute: **file_size** ^{Optional}
    attribute: **local_identifier** ^{Optional}
    attribute: **md5_checksum** ^{Optional}
    attribute: **records** ^{Optional}

    - **End** File

  - **Stream_Text occurs 1 times**

    description: **The Stream text class defines a text object.**
    role: **Concrete**
    attribute: **description** ^{Optional}
    attribute: **local_identifier** ^{Optional}
    attribute: **name** ^{Optional}
    attribute: **object_length** ^{Optional}
    attribute: **offset**
    attribute: **parsing_standard_id**
    attribute: **record_delimiter** value: **carriage-return line-feed**

    - **End** Stream_Text
- **End** File_Area_Text

- **Identification_Area occurs 1 times**

  description: **The identification area consists of attributes that identify and name an object.**
  role: **Concrete**
  attribute: **information_model_version** value: **1.1.0.1**
  attribute: **logical_identifier**
  attribute: **product_class** value: **Product_Bundle**
  attribute: **title**
  attribute: **version_id**

  - **Alias_List - occurs 0 to 1 times**

    description: **The Alias_List class provides a list of paired alternate names and identifications for this product in this or some other archive or data system.**
    role: **Concrete**

    - **Alias - occurs 1 to * times**

      description: **The Alias class provides a single alternate name and identification for this product in this or some other archive or data system.**
      role: **Concrete**
      attribute: **alternate_id** ^{Optional}
      attribute: **alternate_title** ^{Optional}
      attribute: **comment** ^{Optional}

      - **End** Alias
  - **End** Alias_List

- **Citation_Information - occurs 0 to 1 times**

  description: **The Citation_Information class provides specific fields often used in citing the product in journal articles, abstract services, and other reference contexts.**
  role: **Concrete**
  attribute: **author_list** Optional
  attribute: **description**
  attribute: **editor_list** Optional
  attribute: **keyword** Optional
  attribute: **publication_year**

- **End** Citation_Information

- **Modification_History - occurs 0 to 1 times**

  description: **The Modification_History class tracks the history of changes made to the product once it enters the registry system.**
  role: **Concrete**

  - **Modification_Detail - occurs 1 to * times**

    description: **The Modification_Detail class provides the details of one round of modification for the product. The first, required, instance of this class documents the date the product was first registered.**
    role: **Concrete**
    attribute: **description**
    attribute: **modification_date**
    attribute: **version_id**

  - **End** Modification_Detail
- **End** Modification_History
- **End** Identification_Area

- **Reference_List - occurs 0 to 1 times**

  description: **The Reference_List class provides lists general references and cross-references for the product. References cited elsewhere in the label need not be repeated here.**
  role: **Concrete**

  - **External_Reference - occurs 0 to * times**

    description: **The External_Reference class is used to reference a source outside the PDS registry system.**
    role: **Concrete**
    attribute: **description** Optional
    attribute: **doi** Optional
    attribute: **reference_text**

  - **End** External_Reference

  - **Internal_Reference - occurs 0 to * times**

    description: **The Internal_Reference class is used to cross-reference other products in the PDS registry system.**
    role: **Concrete**
    attribute: **comment** Optional
    attribute: **lid_reference** Optional
    attribute: **lidvid_reference** Optional
    attribute: **reference_type**

  - **End** Internal_Reference
- **End** Reference_List
- **End** Product_Bundle

- **Product_Class_Definition**

  description: **The Product Class Definition provides a class definition in XML encoding.**
  role: **Concrete**

  - **DD_Class_Full occurs 1 times**

description: **The DD_Class_Full class provides a more complete definition of a class for a data dictionary.**
role: **Concrete**
attribute: **abstract_flag** Optional
attribute: **comment** Optional
attribute: **definition**
attribute: **local_identifier**
attribute: **name**
attribute: **namespace_id**
attribute: **registered_by**
attribute: **registration_authority_id**
attribute: **steward_id** value: **atm, geo, img, naif, ops, pds, ppi, rings, rs, sbn**
attribute: **submitter_name**
attribute: **type** value: **PDS3, PDS4**
attribute: **version_id**

- **DD_Association - occurs 0 to * times**

  description: **The DD_Association class defines the association between two classes or a class and an attribute in a data dictionary.**
  role: **Concrete**
  attribute: **constant_value** Optional
  attribute: **local_identifier**
  attribute: **maximum_occurrences**
  attribute: **minimum_occurrences**
  attribute: **reference_type** value: **attribute_of, component_of, extension_of, restriction_of, subclass_of**

- **End** DD_Association

- **Terminological_Entry - occurs 0 to * times**

  description: **The terminological_entry class provides the name (designation) and definition of the attribute in a specified natural language.**
  role: **Concrete**
  attribute: **definition**
  attribute: **language** value: **English, Russian**
  attribute: **name**
  attribute: **preferred_flag**

  - **External_Reference_Extended - occurs 0 to * times**

    description: **The External_Reference_Extended class is used to reference a source outside the PDS registry system. This extension is used in the local data dictionary.**
    role: **Concrete**
    attribute: **description** Optional
    attribute: **doi** Optional
    attribute: **name** Optional
    attribute: **reference_text**
    attribute: **url** Optional

    - **End** External_Reference_Extended
- **End** Terminological_Entry
- **End** DD_Class_Full

- **Identification_Area occurs 1 times**

  description: **The identification area consists of attributes that identify and name an object.**
  role: **Concrete**
  attribute: **information_model_version** value: **1.1.0.1**
  attribute: **logical_identifier**
  attribute: **product_class** value: **Product_Class_Definition**
  attribute: **title**
  attribute: **version_id**

  - **Alias_List - occurs 0 to 1 times**

    description: **The Alias_List class provides a list of paired alternate names and identifications for this product in this or some other archive or data system.**
    role: **Concrete**

    - **Alias - occurs 1 to * times**

      description: **The Alias class provides a single alternate name and identification for this product in this or some other archive or data system.**
      role: **Concrete**

- attribute: **alternate_id** Optional
- attribute: **alternate_title** Optional
- attribute: **comment** Optional

  - **End** Alias
- **End** Alias_List

- **Citation_Information - occurs 0 to 1 times**

  description: **The Citation_Information class provides specific fields often used in citing the product in journal articles, abstract services, and other reference contexts.**
  role: **Concrete**
  attribute: **author_list** Optional
  attribute: **description**
  attribute: **editor_list** Optional
  attribute: **keyword** Optional
  attribute: **publication_year**

  - **End** Citation_Information

- **Modification_History - occurs 0 to 1 times**

  description: **The Modification_History class tracks the history of changes made to the product once it enters the registry system.**
  role: **Concrete**

    - **Modification_Detail - occurs 1 to * times**

      description: **The Modification_Detail class provides the details of one round of modification for the product. The first, required, instance of this class documents the date the product was first registered.**
      role: **Concrete**
      attribute: **description**
      attribute: **modification_date**
      attribute: **version_id**

      - **End** Modification_Detail
  - **End** Modification_History
- **End** Identification_Area

- **Reference_List - occurs 0 to 1 times**

  description: **The Reference_List class provides lists general references and cross-references for the product. References cited elsewhere in the label need not be repeated here.**
  role: **Concrete**

    - **External_Reference - occurs 0 to * times**

      description: **The External_Reference class is used to reference a source outside the PDS registry system.**
      role: **Concrete**
      attribute: **description** Optional
      attribute: **doi** Optional
      attribute: **reference_text**

    - **End** External_Reference

    - **Internal_Reference - occurs 0 to * times**

      description: **The Internal_Reference class is used to cross-reference other products in the PDS registry system.**
      role: **Concrete**
      attribute: **comment** Optional
      attribute: **lid_reference** Optional
      attribute: **lidvid_reference** Optional
      attribute: **reference_type**

    - **End** Internal_Reference
  - **End** Reference_List
- **End** Product_Class_Definition

- **Product_Collection**

description: **A Product_Collection has a table of references to one or more basic products. The references are stored in a table called the inventory.**
role: **Concrete**

- **Collection occurs 1 times**

  description: **The Collection class provides a description of a set of products.**
  role: **Concrete**
  attribute: **collection_type** value: **Browse, Calibration, Context, Data, Document, Geometry, Miscellaneous, SPICE Kernel, XML Schema**
  attribute: **description** Optional

- **End** Collection

- **Context_Area - occurs 0 to 1 times**

  description: **The Context Area provides context information for a product.**
  role: **Concrete**
  attribute: **comment** Optional

  - **Discipline_Area - occurs 0 to 1 times**

    description: **The Discipline area allows the insertion of discipline specific metadata.**
    role: **Concrete**

  - **End** Discipline_Area

  - **Investigation_Area - occurs 0 to * times**

    description: **The Investigation_Area class provides information about an investigation (mission, observing campaign or other coordinated, large-scale data collection effort).**
    role: **Concrete**
    attribute: **name**
    attribute: **type** value: **Individual Investigation, Mission, Observing Campaign, Other Investigation**

    - **Internal_Reference - occurs 1 to * times**

      description: **The Internal_Reference class is used to cross-reference other products in the PDS registry system.**
      role: **Concrete**
      attribute: **comment** Optional
      attribute: **lid_reference** Optional
      attribute: **lidvid_reference** Optional
      attribute: **reference_type**

    - **End** Internal_Reference
  - **End** Investigation_Area

  - **Mission_Area - occurs 0 to 1 times**

    description: **The mission area allows the insertion of mission specific metadata.**
    role: **Concrete**

  - **End** Mission_Area

  - **Observing_System - occurs 0 to * times**

    description: **The Observing System class describes the entire suite used to collect the data.**
    role: **Concrete**
    attribute: **description** Optional
    attribute: **name** Optional

    - **Observing_System_Component - occurs 1 to * times**

      description: **The Observing System Component class references one or more subsystems used to collect data. A subsystem can be an instrument_host, instrument, or any other similar product. Each subsystem is categorized as either a sensor or a source. If the observing system includes both a sensor and a source, Observing System Component occurs twice (once for each type) otherwise it only occurs once.**
      role: **Concrete**

attribute: **description** Optional

attribute: **name**

attribute: **type** value: **Artificial Illumination, Instrument, Laboratory, Literature Search, Naked Eye, Observatory, Spacecraft, Telescope**

- **External_Reference - occurs 0 to * times**

  description: **The External_Reference class is used to reference a source outside the PDS registry system.**
  role: **Concrete**
  attribute: **description** Optional
  attribute: **doi** Optional
  attribute: **reference_text**

- **End** External_Reference

- **Internal_Reference - occurs 0 to 1 times**

  description: **The Internal_Reference class is used to cross-reference other products in the PDS registry system.**
  role: **Concrete**
  attribute: **comment** Optional
  attribute: **lid_reference** Optional
  attribute: **lidvid_reference** Optional
  attribute: **reference_type**

  - **End** Internal_Reference
- **End** Observing_System_Component
- **End** Observing_System

- **Primary_Result_Summary - occurs 0 to 1 times**

  description: **The Primary_Result_Summary class provides a high-level description of the types of products included in the collection or bundle**
  role: **Concrete**
  attribute: **data_regime** value: **Dust, Electric Field, Electrons, Far Infrared, Gamma Ray, Infrared, Ions, Magnetic Field, Microwave, Millimeter, Near Infrared, Particles, Pressure, Radio, Sub-Millimeter, Temperature, Ultraviolet, Visible, X-Ray** Optional
  attribute: **description** Optional
  attribute: **processing_level** value: **Calibrated, Derived, Partially Processed, Raw, Telemetry**
  attribute: **processing_level_id** value: **Calibrated, Derived, Partially Processed, Raw, Telemetry** Optional
  attribute: **purpose** value: **Calibration, Checkout, Engineering, Navigation, Science**
  attribute: **type** value: **Altimetry, Astrometry, Count, E/B-Field Vectors, Gravity Model, Image, Lightcurves, Map, Meteorology, Null Result, Occultation, Photometry, Physical Parameters, Polarimetry, Radiometry, Reference, Shape Model, Spectrum** Optional

  - **Science_Facets - occurs 0 to * times**

    description: **The Science_Facets class contains the science-related search facets. It is optional and may be repeated if an product has facets related to, for example, two different disciplines (as defined by the discipline_name facet). Note that Science_Facets was modeled with Discipline_Facets as a component and Discipline_Facets was modeled with Group_Facet1 and Group_Facet2 as components. This dependency hierarchy was flattened and only Science_Facets exists in the schema.**
    role: **Concrete**
    attribute: **domain** value: **Atmosphere, Heliosphere, Interior, Interstellar, Ionosphere, Magnetosphere, Surface** Optional
    attribute: **wavelength_range** value: **Far Infrared, Gamma Ray, Infrared, Microwave, Millimeter, Near Infrared, Radio, Submillimeter, Ultraviolet, Visible, X-ray** Optional

    - **Discipline_Facets occurs 1 times**

      description: **The Discipline_Facets class contains the discipline-related search facets. It is required and may not be repeated. Note that Science_Facets was modeled with Discipline_Facets as a component and Discipline_Facets was modeled with Group_Facet1 and Group_Facet2 as components. This dependency hierarchy was flattened and only Science_Facets exists in the schema.**
      role: **Concrete**
      attribute: **discipline_name** value: **Atmospheres, Fields, Flux Measurements, Imaging, Particles, Ring-Moon Systems, Small Bodies, Spectroscopy**

      - **Group_Facet1 - occurs 0 to * times**

description: **The Group_Facet1 class contains a single facet restricted according to the value of discipline_name. It also contains zero or more subfacets restricted according to the value of the facet. Note that Science_Facets was modeled with Discipline_Facets as a component and Discipline_Facets was modeled with Group_Facet1 and Group_Facet2 as components. This dependency hierarchy was flattened and only Science_Facets exists in the schema.**
role: **Concrete**
attribute: **facet1** value: **2D, Color, Color Movie, Dust Study, Dynamical Properties, Electric, Electrons, Gas Study, Grayscale, Historical Reference, Ions, Lightcurve, Linear, Magnetic, Meteoritics, Meteorology, Movie, Neutrals, Photometry, Physical Properties, Polarimetry, Production Rates, Ring Compositional Map, Ring Occultation Profile, Ring Thermal Map, Satellite Astrometry, Shape Model, Spectral Cube, Spectral Image, Structure, Tabulated, Taxonomy** Optional
attribute: **subfacet1** Optional

- **End** Group_Facet1

- **Group_Facet2 - occurs 0 to * times**

  description: **The Group_Facet2 class contains a single facet restricted according to the value of discipline_name. It also contains zero or more subfacets restricted according to the value of the facet. Note that Science_Facets was modeled with Discipline_Facets as a component and Discipline_Facets was modeled with Group_Facet1 and Group_Facet2 as components. This dependency hierarchy was flattened and only Science_Facets exists in the schema.**
  role: **Concrete**
  attribute: **facet2** value: **Background, Cosmic Ray, Energetic, Plasma, Solar Energetic, Waves** Optional
  attribute: **subfacet2** Optional

  - **End** Group_Facet2
- **End** Discipline_Facets
- **End** Science_Facets
- **End** Primary_Result_Summary

- **Target_Identification - occurs 0 to * times**

  description: **The Target_Identification class provides detailed target identification information.**
  role: **Concrete**
  attribute: **alternate_designation** Optional
  attribute: **description** Optional
  attribute: **name**
  attribute: **type** value: **Asteroid, Comet, Dust, Dwarf Planet, Galaxy, Globular Cluster, Meteorite, Meteoroid, Meteoroid Stream, Nebula, Open Cluster, Planet, Planetary Nebula, Planetary System, Plasma Cloud, Ring, Satellite, Star, Star Cluster, Sun, Terrestrial Sample, Trans-Neptunian Object**

  - **Internal_Reference - occurs 0 to 1 times**

    description: **The Internal_Reference class is used to cross-reference other products in the PDS registry system.**
    role: **Concrete**
    attribute: **comment** Optional
    attribute: **lid_reference** Optional
    attribute: **lidvid_reference** Optional
    attribute: **reference_type**

  - **End** Internal_Reference
- **End** Target_Identification

- **Time_Coordinates - occurs 0 to 1 times**

  description: **The Time_Coordinates class provides a list of time coordinates.**
  role: **Concrete**
  attribute: **local_mean_solar_time** Optional
  attribute: **local_true_solar_time** Optional
  attribute: **solar_longitude** Optional
  attribute: **start_date_time**
  attribute: **stop_date_time**

  - **End** Time_Coordinates
- **End** Context_Area

- **File_Area_Inventory occurs 1 times**

  description: **The File Area Inventory class describes a file and an inventory consisting of references to members.**
  role: **Concrete**

  - **File occurs 1 times**

    description: **The File class consists of attributes that describe a file in a data store.**
    role: **Concrete**
    attribute: **comment** Optional
    attribute: **creation_date_time** Optional
    attribute: **file_name**
    attribute: **file_size** Optional
    attribute: **local_identifier** Optional
    attribute: **md5_checksum** Optional
    attribute: **records** Optional

  - **End** File

  - **Inventory occurs 1 times**

    description: **The Inventory class defines the inventory for members of a collection.**
    role: **Concrete**
    attribute: **description** Optional
    attribute: **field_delimiter** value: **comma, horizontal tab, semicolon, vertical bar**
    attribute: **local_identifier** Optional
    attribute: **name** Optional
    attribute: **object_length** Optional
    attribute: **offset**
    attribute: **parsing_standard_id** value: **PDS DSV 1**
    attribute: **record_delimiter** value: **carriage-return line-feed**
    attribute: **records**
    attribute: **reference_type** value: **inventory_has_member_product**

    - **Record_Delimited occurs 1 times**

      description: **The Record_Delimited class is a component of the delimited table (spreadsheet) class and defines a record of the delimited table.**
      role: **Concrete**
      attribute: **fields**
      attribute: **groups**
      attribute: **maximum_record_length** Optional

      - **Field_Delimited - occurs 1 to * times**

        description: **The Field_Delimited class defines a field of a delimited record or a field of a delimited group.**
        role: **Concrete**
        attribute: **data_type** value: **ASCII_AnyURI, ASCII_Boolean, ASCII_DOI, ASCII_Date, ASCII_Date_DOY, ASCII_Date_Time, ASCII_Date_Time_DOY, ASCII_Date_Time_UTC, ASCII_Date_Time_YMD, ASCII_Date_YMD, ASCII_Directory_Path_Name, ASCII_File_Name, ASCII_File_Specification_Name, ASCII_Integer, ASCII_LID, ASCII_LIDVID, ASCII_LIDVID_LID, ASCII_MD5_Checksum, ASCII_NonNegative_Integer, ASCII_Numeric_Base16, ASCII_Numeric_Base2, ASCII_Numeric_Base8, ASCII_Real, ASCII_String, ASCII_Time, ASCII_VID, UTF8_String**
        attribute: **description** Optional
        attribute: **field_format** Optional
        attribute: **field_number** Optional
        attribute: **maximum_field_length** Optional
        attribute: **name**
        attribute: **scaling_factor** Optional
        attribute: **unit** Optional
        attribute: **value_offset** Optional

        - **Field_Statistics - occurs 0 to 1 times**

          description: **The Field Statistics class provides a set of metrics for a column formed by a field in a repeating record.**
          role: **Concrete**

attribute: **description** ^{Optional}
attribute: **local_identifier** ^{Optional}
attribute: **maximum** ^{Optional}
attribute: **mean** ^{Optional}
attribute: **median** ^{Optional}
attribute: **minimum** ^{Optional}
attribute: **standard_deviation** ^{Optional}

- **End** Field_Statistics

- **Special_Constants - occurs 0 to 1 times**

  description: **The Special Constants class provides a set of values used to indicate special cases that occur in the data.**
  role: **Concrete**
  attribute: **error_constant** ^{Optional}
  attribute: **high_instrument_saturation** value: **-32765, 255, 3, 65534, FF7FFFFE, FFFCFFFF** ^{Optional}
  attribute: **high_representation_saturation** value: **-32764, 255, 4, 65535, FF7FFFFF, FFFBFFFF** ^{Optional}
  attribute: **invalid_constant** ^{Optional}
  attribute: **low_instrument_saturation** value: **-32766, 0, 2, FF7FFFFD, FFFDFFFF** ^{Optional}
  attribute: **low_representation_saturation** value: **-32767, 1, 16#FF7FFFFC#, 16#FFFEFFFF#** ^{Optional}
  attribute: **missing_constant** ^{Optional}
  attribute: **not_applicable_constant** ^{Optional}
  attribute: **saturated_constant** ^{Optional}
  attribute: **unknown_constant** ^{Optional}
  attribute: **valid_maximum** value: **254, 32767, 65522** ^{Optional}
  attribute: **valid_minimum** value: **-32752, 1, 3, 5, FF7FFFFA, FFEFFFFF** ^{Optional}

  - **End** Special_Constants
- **End** Field_Delimited

- **Group_Field_Delimited - occurs 1 to * times**

  description: **The Field_Group_Delimited class allows a group of delimited fields.**
  role: **Concrete**
  attribute: **fields**
  attribute: **group_number** ^{Optional}
  attribute: **groups**
  attribute: **repetitions**

  - **Field_Delimited - occurs 1 to * times**

    description: **The Field_Delimited class defines a field of a delimited record or a field of a delimited group.**
    role: **Concrete**
    attribute: **data_type** value: **ASCII_AnyURI, ASCII_Boolean, ASCII_DOI, ASCII_Date, ASCII_Date_DOY, ASCII_Date_Time, ASCII_Date_Time_DOY, ASCII_Date_Time_UTC, ASCII_Date_Time_YMD, ASCII_Date_YMD, ASCII_Directory_Path_Name, ASCII_File_Name, ASCII_File_Specification_Name, ASCII_Integer, ASCII_LID, ASCII_LIDVID, ASCII_LIDVID_LID, ASCII_MD5_Checksum, ASCII_NonNegative_Integer, ASCII_Numeric_Base16, ASCII_Numeric_Base2, ASCII_Numeric_Base8, ASCII_Real, ASCII_String, ASCII_Time, ASCII_VID, UTF8_String**
    attribute: **description** ^{Optional}
    attribute: **field_format** ^{Optional}
    attribute: **field_number** ^{Optional}
    attribute: **maximum_field_length** ^{Optional}
    attribute: **name**
    attribute: **scaling_factor** ^{Optional}
    attribute: **unit** ^{Optional}
    attribute: **value_offset** ^{Optional}

    - **Field_Statistics - occurs 0 to 1 times**

      description: **The Field Statistics class provides a set of metrics for a column formed by a field in a repeating record.**
      role: **Concrete**

attribute: **description** ^{Optional}
attribute: **local_identifier** ^{Optional}
attribute: **maximum** ^{Optional}
attribute: **mean** ^{Optional}
attribute: **median** ^{Optional}
attribute: **minimum** ^{Optional}
attribute: **standard_deviation** ^{Optional}

- **End** Field_Statistics

- **Special_Constants - occurs 0 to 1 times**

  description: **The Special Constants class provides a set of values used to indicate special cases that occur in the data.**
  role: **Concrete**
  attribute: **error_constant** ^{Optional}
  attribute: **high_instrument_saturation** value: **-32765, 255, 3, 65534, FF7FFFFE, FFFCFFFF** ^{Optional}
  attribute: **high_representation_saturation** value: **-32764, 255, 4, 65535, FF7FFFFF, FFFBFFFF** ^{Optional}
  attribute: **invalid_constant** ^{Optional}
  attribute: **low_instrument_saturation** value: **-32766, 0, 2, FF7FFFFD, FFFDFFFF** ^{Optional}
  attribute: **low_representation_saturation** value: **-32767, 1, 16#FF7FFFFC#, 16#FFFEFFFF#** ^{Optional}
  attribute: **missing_constant** ^{Optional}
  attribute: **not_applicable_constant** ^{Optional}
  attribute: **saturated_constant** ^{Optional}
  attribute: **unknown_constant** ^{Optional}
  attribute: **valid_maximum** value: **254, 32767, 65522** ^{Optional}
  attribute: **valid_minimum** value: **-32752, 1, 3, 5, FF7FFFFA, FFEFFFFF** ^{Optional}

- **End** Special_Constants
- **End** Field_Delimited
- **End** Group_Field_Delimited
- **End** Record_Delimited

- **Uniformly_Sampled - occurs 0 to 1 times**

  description: **The Uniformly_Sampled class provides parameters for a uniformly sampled table.**
  role: **Concrete**
  attribute: **first_sampling_parameter_value**
  attribute: **last_sampling_parameter_value**
  attribute: **sampling_parameter_interval**
  attribute: **sampling_parameter_name**
  attribute: **sampling_parameter_scale** value: **Exponential, Linear, Logarithmic** ^{Optional}
  attribute: **sampling_parameter_unit**

- **End** Uniformly_Sampled
- **End** Inventory
- **End** File_Area_Inventory

- **Identification_Area occurs 1 times**

  description: **The identification area consists of attributes that identify and name an object.**
  role: **Concrete**
  attribute: **information_model_version** value: **1.1.0.1**
  attribute: **logical_identifier**
  attribute: **product_class** value: **Product_Collection**
  attribute: **title**
  attribute: **version_id**

- **Alias_List - occurs 0 to 1 times**

  description: **The Alias_List class provides a list of paired alternate names and identifications for this product in this or some other archive or data system.**
  role: **Concrete**

- **Alias - occurs 1 to * times**

description: **The Alias class provides a single alternate name and identification for this product in this or some other archive or data system.**
role: **Concrete**
attribute: **alternate_id** Optional
attribute: **alternate_title** Optional
attribute: **comment** Optional

- **End** Alias
- **End** Alias_List

- **Citation_Information - occurs 0 to 1 times**

  description: **The Citation_Information class provides specific fields often used in citing the product in journal articles, abstract services, and other reference contexts.**
  role: **Concrete**
  attribute: **author_list** Optional
  attribute: **description**
  attribute: **editor_list** Optional
  attribute: **keyword** Optional
  attribute: **publication_year**

- **End** Citation_Information

- **Modification_History - occurs 0 to 1 times**

  description: **The Modification_History class tracks the history of changes made to the product once it enters the registry system.**
  role: **Concrete**

  - **Modification_Detail - occurs 1 to * times**

    description: **The Modification_Detail class provides the details of one round of modification for the product. The first, required, instance of this class documents the date the product was first registered.**
    role: **Concrete**
    attribute: **description**
    attribute: **modification_date**
    attribute: **version_id**

  - **End** Modification_Detail
- **End** Modification_History
- **End** Identification_Area

- **Reference_List - occurs 0 to 1 times**

  description: **The Reference_List class provides lists general references and cross-references for the product. References cited elsewhere in the label need not be repeated here.**
  role: **Concrete**

  - **External_Reference - occurs 0 to * times**

    description: **The External_Reference class is used to reference a source outside the PDS registry system.**
    role: **Concrete**
    attribute: **description** Optional
    attribute: **doi** Optional
    attribute: **reference_text**

  - **End** External_Reference

  - **Internal_Reference - occurs 0 to * times**

    description: **The Internal_Reference class is used to cross-reference other products in the PDS registry system.**
    role: **Concrete**
    attribute: **comment** Optional
    attribute: **lid_reference** Optional
    attribute: **lidvid_reference** Optional
    attribute: **reference_type**

  - **End** Internal_Reference
- **End** Reference_List
- **End** Product_Collection

- **Product_Context**

  description: **The Product Context class describes something that provides context and provenance for an observational product.**
  role: **Concrete**

  - **Agency occurs 1 times**

    description: **The Agency class provides a description of an entity that provides regional or national level governance over nodes within the federated Planetary Data System.**
    role: **Concrete**
    attribute: **description**
    attribute: **name** value: **European Space Agency, National Aeronautics and Space Administration**

  - **End** Agency

  - **Discipline_Area - occurs 0 to 1 times**

    description: **The Discipline area allows the insertion of discipline specific metadata.**
    role: **Concrete**

  - **End** Discipline_Area

  - **Facility occurs 1 times**

    description: **The Facility class provides a name and address for a terrestrial observatory or laboratory.**
    role: **Concrete**
    attribute: **address** Optional
    attribute: **country** Optional
    attribute: **description** Optional
    attribute: **name** Optional
    attribute: **type** value: **Laboratory, Observatory** Optional

  - **End** Facility

  - **Identification_Area occurs 1 times**

    description: **The identification area consists of attributes that identify and name an object.**
    role: **Concrete**
    attribute: **information_model_version** value: **1.1.0.1**
    attribute: **logical_identifier**
    attribute: **product_class** value: **Product_Context**
    attribute: **title**
    attribute: **version_id**

    - **Alias_List - occurs 0 to 1 times**

      description: **The Alias_List class provides a list of paired alternate names and identifications for this product in this or some other archive or data system.**
      role: **Concrete**

      - **Alias - occurs 1 to * times**

        description: **The Alias class provides a single alternate name and identification for this product in this or some other archive or data system.**
        role: **Concrete**
        attribute: **alternate_id** Optional
        attribute: **alternate_title** Optional
        attribute: **comment** Optional

      - **End** Alias
    - **End** Alias_List

    - **Citation_Information - occurs 0 to 1 times**

      description: **The Citation_Information class provides specific fields often used in citing the product in journal articles, abstract services, and other reference contexts.**
      role: **Concrete**
      attribute: **author_list** Optional
      attribute: **description**
      attribute: **editor_list** Optional

attribute: **keyword** ^{Optional}
attribute: **publication_year**

- **End** Citation_Information

- **Modification_History - occurs 0 to 1 times**

  description: **The Modification_History class tracks the history of changes made to the product once it enters the registry system.**
  role: **Concrete**

  - **Modification_Detail - occurs 1 to * times**

    description: **The Modification_Detail class provides the details of one round of modification for the product. The first, required, instance of this class documents the date the product was first registered.**
    role: **Concrete**
    attribute: **description**
    attribute: **modification_date**
    attribute: **version_id**

    - **End** Modification_Detail
  - **End** Modification_History
- **End** Identification_Area

- **Instrument occurs 1 times**

  description: **The Instrument class provides a description of a physical object that collects data.**
  role: **Concrete**
  attribute: **description**
  attribute: **model_id** ^{Optional}
  attribute: **naif_instrument_id** ^{Optional}
  attribute: **name** ^{Optional}
  attribute: **serial_number** ^{Optional}
  attribute: **type** value: **Accelerometer, Alpha Particle Detector, Alpha Particle Xray Spectrometer, Altimeter, Anemometer, Atomic Force Microscope, Barometer, Biology Experiments, Bolometer, Camera, Cosmic Ray Detector, Dust Detector, Electrical Probe, Energetic Particle Detector, Gamma Ray Detector, Gas Analyzer, Grinding And Drilling Tool, Hygrometer, Imager, Imaging Spectrometer, Inertial Measurement Unit, Infrared Spectrometer, Laser Induced Breakdown Spectrometer, Magnetometer, Mass Spectrometer, Microwave Spectrometer, Moessbauer Spectrometer, Naked Eye, Neutral Particle Detector, Neutron Detector, Photometer, Plasma Analyzer, Plasma Detector, Plasma Wave Spectrometer, Polarimeter, RADAR, Radio Science, Radio Spectrometer, Radio Telescope, Radiometer, Reflectometer, Robotic Arm, Spectrograph Imager, Spectrometer, Thermal And Electrical Conductivity Probe, Thermal Imager, Thermal Probe, Thermometer, Ultraviolet Spectrometer, Wet Chemistry Laboratory, X-ray Defraction Spectrometer, X-ray Detector, X-ray Fluorescence, X-ray Fluorescence Spectrometer**

- **End** Instrument

- **Instrument_Host occurs 1 times**

  description: **The Instrument Host class provides a description of the physical object upon which an instrument is mounted.**
  role: **Concrete**
  attribute: **description**
  attribute: **naif_host_id** ^{Optional}
  attribute: **name** ^{Optional}
  attribute: **serial_number** ^{Optional}
  attribute: **type** value: **Earth Based, Earth-based, Lander, Rover, Spacecraft**
  attribute: **version_id** ^{Optional}

- **End** Instrument_Host

- **Investigation occurs 1 times**

  description: **The Investigation class provides a description of activities involved in the collection of data.**
  role: **Concrete**
  attribute: **description**
  attribute: **name** ^{Optional}
  attribute: **start_date**
  attribute: **stop_date**
  attribute: **type** value: **Individual Investigation, Mission, Observing Campaign, Other Investigation**

- **End** Investigation

- **Node occurs 1 times**

  description: **The Node class provides a description of an entity that provides local governance within the federated Planetary Data System.**
  role: **Concrete**
  attribute: **description**
  attribute: **institution_name**
  attribute: **name** value: **Engineering, Geosciences, Imaging, Management, Navigation Ancillary Information Facility, Planetary Atmospheres, Planetary Plasma Interactions, Planetary Rings, Planetary Science Archive, Radio Science, Small Bodies**

- **End** Node

- **Other occurs 1 times**

  description: **The Other class provides a description of activities involved in the collection of data which are not otherwise modeled.**
  role: **Concrete**
  attribute: **description**

- **End** Other

- **PDS_Affiliate occurs 1 times**

  description: **The PDS Affiliate class provides a description of a person who has an association with the planetary science community and has access to PDS resources not normally allowed to the general public.**
  role: **Concrete**
  attribute: **affiliation_type** value: **Affiliate, Data Provider, Manager, Technical Staff**
  attribute: **alternate_telephone_number** Optional
  attribute: **description**
  attribute: **electronic_mail_address** Optional
  attribute: **institution_name**
  attribute: **name** Optional
  attribute: **phone_book_flag**
  attribute: **postal_address_text**
  attribute: **registration_date**
  attribute: **sort_name**
  attribute: **team_name** value: **Engineering, Geosciences, Headquarters, Imaging, Management, National Space Science Data Center, Navigation Ancillary Information Facility, Planetary Atmospheres, Planetary Plasma Interactions, Planetary Rings, Radio Science, Small Bodies** Optional
  attribute: **telephone_number** Optional

- **End** PDS_Affiliate

- **PDS_Guest occurs 1 times**

  description: **The PDS_Guest class is the default description of a person who has an association with the planetary science community and who has the most limited access to PDS resources.**
  role: **Concrete**
  attribute: **description**
  attribute: **electronic_mail_address** Optional
  attribute: **name** Optional
  attribute: **registration_date**
  attribute: **sort_name**

- **End** PDS_Guest

- **Reference_List - occurs 0 to 1 times**

  description: **The Reference_List class provides lists general references and cross-references for the product. References cited elsewhere in the label need not be repeated here.**
  role: **Concrete**

  - **External_Reference - occurs 0 to * times**

    description: **The External_Reference class is used to reference a source outside the PDS registry system.**
    role: **Concrete**
    attribute: **description** Optional
    attribute: **doi** Optional
    attribute: **reference_text**

  - **End** External_Reference

- **Internal_Reference - occurs 0 to * times**

    description: **The Internal_Reference class is used to cross-reference other products in the PDS registry system.**
    role: **Concrete**
    attribute: **comment** Optional
    attribute: **lid_reference** Optional
    attribute: **lidvid_reference** Optional
    attribute: **reference_type**

  - **End** Internal_Reference
- **End** Reference_List

- **Resource occurs 1 times**

    description: **The Resource class provides a description of a web resource.**
    role: **Concrete**
    attribute: **description**
    attribute: **name** Optional
    attribute: **type** value: **Information.Agency, Information.Instrument, Information.Instrument_Host, Information.Investigation, Information.Node, Information.Person, Information.Resource, Information.Science_Portal, Information.Target, System.Browse, System.Directory_Listing, System.Registry_Query, System.Search, System.Transform, System.Transport**
    attribute: **url**

  - **End** Resource

- **Target occurs 1 times**

    description: **The Target class provides a description of a physical object that is the object of data collection.**
    role: **Concrete**
    attribute: **description**
    attribute: **name** Optional
    attribute: **type** value: **Asteroid, Comet, Dust, Dwarf Planet, Galaxy, Globular Cluster, Meteorite, Meteoroid, Meteoroid Stream, Nebula, Open Cluster, Planet, Planetary Nebula, Planetary System, Plasma Cloud, Ring, Satellite, Star, Star Cluster, Sun, Terrestrial Sample, Trans-Neptunian Object** Optional

  - **End** Target

- **Telescope occurs 1 times**

    description: **The Telescope class provides coordinates and parameters for terrestrial, ground-based telescopes.**
    role: **Concrete**
    attribute: **altitude**
    attribute: **aperture**
    attribute: **coordinate_source** value: **Aerial survey - North American (1983) datum, Astronomical, Doppler determined - WGS 72 datum, Geodetic - Adindan datum, Geodetic - Australian datum, Geodetic - Campo Inchauspe (Argentina) datum, Geodetic - Cape (South Africa) datum, Geodetic - Corregio Alegre (Brazil) datum, Geodetic - European 1979 datum, Geodetic - European datum, Geodetic - GRS 80 datum, Geodetic - Hermannskogel datum, Geodetic - Indian datum, Geodetic - La Canoa (Venezuela) datum, Geodetic - New Zealand datum, Geodetic - North American (1927) datum, Geodetic - Old Hawaiian datum, Geodetic - Ordnance Survey of Great Britain (1936) datum, Geodetic - Ordnance Survey of Great Britain (SN) 1980 datum, Geodetic - Potsdam datum, Geodetic - Puerto Rican (1940) datum, Geodetic - South American datum, Geodetic - Tokyo datum, Geodetic - WGS 84 datum, Geodetic - datum unknown, Satellite determined - datum unknown, Unknown**
    attribute: **description** Optional
    attribute: **telescope_latitude** Optional
    attribute: **telescope_longitude** Optional

  - **End** Telescope
- **End** Product_Context

- **Product_Data_Set_PDS3**

  description: **The Data Set PDS3 product is used to create proxy labels for the data sets in the PDS3 Data Set catalog.**
  role: **Concrete**

  - **Data_Set_PDS3 occurs 1 times**

    description: **The Data Set PDS3 class is used to capture the data set information from the PDS3 Data Set Catalog.**

role: **Concrete**
attribute: **abstract_desc**
attribute: **archive_status** value: **ARCHIVED, ARCHIVED_ACCUMULATING, IN_LIEN_RESOLUTION, IN_LIEN_RESOLUTION_ACCUMULATING, IN_PEER_REVIEW, IN_PEER_REVIEW_ACCUMULATING, IN_QUEUE, IN_QUEUE_ACCUMULATING, LOCALLY_ARCHIVED, LOCALLY_ARCHIVED_ACCUMULATING, PRE_PEER_REVIEW, PRE_PEER_REVIEW_ACCUMULATING, SAFED, SUPERSEDED**
attribute: **citation_text**
attribute: **confidence_level_note**
attribute: **data_set_desc**
attribute: **data_set_id**
attribute: **data_set_name**
attribute: **data_set_release_date**
attribute: **data_set_terse_desc**
attribute: **producer_full_name**
attribute: **start_date_time**
attribute: **stop_date_time**

- **NSSDC - occurs 0 to * times**

  description: **The NSSDC Information class provides identification information for data submitted to the NSSDC.**
  role: **Concrete**
  attribute: **medium_type**
  attribute: **nssdc_collection_id**

  - **End** NSSDC
- **End** Data_Set_PDS3

- **Identification_Area occurs 1 times**

  description: **The identification area consists of attributes that identify and name an object.**
  role: **Concrete**
  attribute: **information_model_version** value: **1.1.0.1**
  attribute: **logical_identifier**
  attribute: **product_class** value: **Product_Data_Set_PDS3**
  attribute: **title**
  attribute: **version_id**

  - **Alias_List - occurs 0 to 1 times**

    description: **The Alias_List class provides a list of paired alternate names and identifications for this product in this or some other archive or data system.**
    role: **Concrete**

    - **Alias - occurs 1 to * times**

      description: **The Alias class provides a single alternate name and identification for this product in this or some other archive or data system.**
      role: **Concrete**
      attribute: **alternate_id** Optional
      attribute: **alternate_title** Optional
      attribute: **comment** Optional

      - **End** Alias
  - **End** Alias_List

  - **Citation_Information - occurs 0 to 1 times**

    description: **The Citation_Information class provides specific fields often used in citing the product in journal articles, abstract services, and other reference contexts.**
    role: **Concrete**
    attribute: **author_list** Optional
    attribute: **description**
    attribute: **editor_list** Optional
    attribute: **keyword** Optional
    attribute: **publication_year**

  - **End** Citation_Information

  - **Modification_History - occurs 0 to 1 times**

    description: **The Modification_History class tracks the history of changes made to the product once it enters the registry system.**
    role: **Concrete**

- **Modification_Detail - occurs 1 to * times**

  description: **The Modification_Detail class provides the details of one round of modification for the product. The first, required, instance of this class documents the date the product was first registered.**
  role: **Concrete**
  attribute: **description**
  attribute: **modification_date**
  attribute: **version_id**

  - **End** Modification_Detail
- **End** Modification_History
- **End** Identification_Area

- **Reference_List - occurs 0 to 1 times**

  description: **The Reference_List class provides lists general references and cross-references for the product. References cited elsewhere in the label need not be repeated here.**
  role: **Concrete**

  - **External_Reference - occurs 0 to * times**

    description: **The External_Reference class is used to reference a source outside the PDS registry system.**
    role: **Concrete**
    attribute: **description** Optional
    attribute: **doi** Optional
    attribute: **reference_text**

  - **End** External_Reference

  - **Internal_Reference - occurs 0 to * times**

    description: **The Internal_Reference class is used to cross-reference other products in the PDS registry system.**
    role: **Concrete**
    attribute: **comment** Optional
    attribute: **lid_reference** Optional
    attribute: **lidvid_reference** Optional
    attribute: **reference_type**

  - **End** Internal_Reference
- **End** Reference_List
- **End** Product_Data_Set_PDS3

- **Product_DIP**

  description: **The Product DIP class defines a product for the Dissemination Information Package.**
  role: **Concrete**

  - **Dissemination_Information_Package occurs 1 times**

    description: **The Dissemination Information Package (DIP) class defines an Information Package, derived from one or more AIPs, that is received by a consumer.**
    role: **Concrete**
    attribute: **description**

  - **End** Dissemination_Information_Package

  - **Identification_Area occurs 1 times**

    description: **The identification area consists of attributes that identify and name an object.**
    role: **Concrete**
    attribute: **information_model_version** value: **1.1.0.1**
    attribute: **logical_identifier**
    attribute: **product_class** value: **Product_DIP**
    attribute: **title**
    attribute: **version_id**

    - **Alias_List - occurs 0 to 1 times**

description: **The Alias_List class provides a list of paired alternate names and identifications for this product in this or some other archive or data system.**
role: **Concrete**

- **Alias - occurs 1 to * times**

  description: **The Alias class provides a single alternate name and identification for this product in this or some other archive or data system.**
  role: **Concrete**
  attribute: **alternate_id** Optional
  attribute: **alternate_title** Optional
  attribute: **comment** Optional

  - **End** Alias
- **End** Alias_List

- **Citation_Information - occurs 0 to 1 times**

  description: **The Citation_Information class provides specific fields often used in citing the product in journal articles, abstract services, and other reference contexts.**
  role: **Concrete**
  attribute: **author_list** Optional
  attribute: **description**
  attribute: **editor_list** Optional
  attribute: **keyword** Optional
  attribute: **publication_year**

- **End** Citation_Information

- **Modification_History - occurs 0 to 1 times**

  description: **The Modification_History class tracks the history of changes made to the product once it enters the registry system.**
  role: **Concrete**

  - **Modification_Detail - occurs 1 to * times**

    description: **The Modification_Detail class provides the details of one round of modification for the product. The first, required, instance of this class documents the date the product was first registered.**
    role: **Concrete**
    attribute: **description**
    attribute: **modification_date**
    attribute: **version_id**

    - **End** Modification_Detail
  - **End** Modification_History
- **End** Identification_Area

- **Information_Package_Component - occurs 1 to * times**

  description: **The Information_Package_Component class associates a Bundle, Collections or Basic Products with Checksum and Storage Manifests.**
  role: **Concrete**
  attribute: **checksum_manifest_checksum** Optional
  attribute: **checksum_type** Optional
  attribute: **transfer_manifest_checksum** Optional

  - **File_Area_Checksum_Manifest - occurs 0 to 1 times**

    description: **The File Area Checksum Manifest class describes a file that contains a two column table for file references and checksums.**
    role: **Concrete**

    - **Checksum_Manifest occurs 1 times**

      description: **The Checksum_Manifest class defines a two column table for file references and checksums. The table structure is compatible with the output from an MD5 checksum utility.**
      role: **Concrete**
      attribute: **description** Optional
      attribute: **local_identifier** Optional
      attribute: **name** Optional

attribute: **object_length** Optional
attribute: **offset**
attribute: **parsing_standard_id** value: **MD5Deep 4.n**
attribute: **record_delimiter** value: **carriage-return line-feed**

- **End** Checksum_Manifest

- **File occurs 1 times**

  description: **The File class consists of attributes that describe a file in a data store.**
  role: **Concrete**
  attribute: **comment** Optional
  attribute: **creation_date_time** Optional
  attribute: **file_name**
  attribute: **file_size** Optional
  attribute: **local_identifier** Optional
  attribute: **md5_checksum** Optional
  attribute: **records** Optional

  - **End** File
- **End** File_Area_Checksum_Manifest

- **File_Area_Transfer_Manifest - occurs 0 to 1 times**

  description: **The File Area Transfer Manifest class describes a file that contains a two column table that maps the logical identifiers and version ids of products to their file specification names.**
  role: **Concrete**

  - **File occurs 1 times**

    description: **The File class consists of attributes that describe a file in a data store.**
    role: **Concrete**
    attribute: **comment** Optional
    attribute: **creation_date_time** Optional
    attribute: **file_name**
    attribute: **file_size** Optional
    attribute: **local_identifier** Optional
    attribute: **md5_checksum** Optional
    attribute: **records** Optional

  - **End** File

  - **Transfer_Manifest occurs 1 times - Base_Class:Table_Base**

    description: **The Transfer_Manifest class defines a table that maps product LIDVIDs to the file_specificaition_names of the products' XML label files.**
    role: **Concrete**
    attribute: **description** Optional
    attribute: **local_identifier** Optional
    attribute: **name** Optional
    attribute: **offset**
    attribute: **record_delimiter** value: **carriage-return line-feed**
    attribute: **records**

    - **Record_Character occurs 1 times**

      description: **The Record_Character class is a component of the table class and defines a record of the table.**
      role: **Concrete**
      attribute: **fields**
      attribute: **groups**
      attribute: **record_length**

      - **Field_Character - occurs 1 to * times**

        description: **The Field_Character class defines a field of a character record or a field of a character group.**
        role: **Concrete**
        attribute: **data_type** value: **ASCII_AnyURI, ASCII_Boolean, ASCII_DOI, ASCII_Date, ASCII_Date_DOY, ASCII_Date_Time, ASCII_Date_Time_DOY, ASCII_Date_Time_UTC, ASCII_Date_Time_YMD, ASCII_Date_YMD, ASCII_Directory_Path_Name, ASCII_File_Name,**

ASCII_File_Specification_Name, ASCII_Integer, ASCII_LID, ASCII_LIDVID, ASCII_LIDVID_LID, ASCII_MD5_Checksum, ASCII_NonNegative_Integer, ASCII_Numeric_Base16, ASCII_Numeric_Base2, ASCII_Numeric_Base8, ASCII_Real, ASCII_String, ASCII_Time, ASCII_VID, UTF8_String

attribute: **description** Optional

attribute: **field_format** Optional

attribute: **field_length**

attribute: **field_location**

attribute: **field_number** Optional

attribute: **name**

attribute: **scaling_factor** Optional

attribute: **unit** Optional

attribute: **value_offset** Optional

- **Field_Statistics - occurs 0 to 1 times**

  description: **The Field Statistics class provides a set of metrics for a column formed by a field in a repeating record.**
  role: **Concrete**
  attribute: **description** Optional
  attribute: **local_identifier** Optional
  attribute: **maximum** Optional
  attribute: **mean** Optional
  attribute: **median** Optional
  attribute: **minimum** Optional
  attribute: **standard_deviation** Optional

- **End** Field_Statistics

- **Special_Constants - occurs 0 to 1 times**

  description: **The Special Constants class provides a set of values used to indicate special cases that occur in the data.**
  role: **Concrete**
  attribute: **error_constant** Optional
  attribute: **high_instrument_saturation** value: **-32765, 255, 3, 65534, FF7FFFFE, FFFCFFFF** Optional
  attribute: **high_representation_saturation** value: **-32764, 255, 4, 65535, FF7FFFFF, FFFBFFFF** Optional
  attribute: **invalid_constant** Optional
  attribute: **low_instrument_saturation** value: **-32766, 0, 2, FF7FFFFD, FFFDFFFF** Optional
  attribute: **low_representation_saturation** value: **-32767, 1, 16#FF7FFFFC#, 16#FFFEFFFF#** Optional
  attribute: **missing_constant** Optional
  attribute: **not_applicable_constant** Optional
  attribute: **saturated_constant** Optional
  attribute: **unknown_constant** Optional
  attribute: **valid_maximum** value: **254, 32767, 65522** Optional
  attribute: **valid_minimum** value: **-32752, 1, 3, 5, FF7FFFFA, FFEFFFFF** Optional

  - **End** Special_Constants
- **End** Field_Character

- **Group_Field_Character - occurs 1 to * times**

  description: **The Group_Field_Character class allows a group of table fields.**
  role: **Concrete**
  attribute: **fields**
  attribute: **group_length**
  attribute: **group_location**
  attribute: **group_number** Optional
  attribute: **groups**
  attribute: **repetitions**

  - **Field_Character - occurs 1 to * times**

    description: **The Field_Character class defines a field of a character record or a field of a character group.**
    role: **Concrete**
    attribute: **data_type** value: **ASCII_AnyURI, ASCII_Boolean,**

ASCII_DOI, ASCII_Date, ASCII_Date_DOY, ASCII_Date_Time, ASCII_Date_Time_DOY, ASCII_Date_Time_UTC, ASCII_Date_Time_YMD, ASCII_Date_YMD, ASCII_Directory_Path_Name, ASCII_File_Name, ASCII_File_Specification_Name, ASCII_Integer, ASCII_LID, ASCII_LIDVID, ASCII_LIDVID_LID, ASCII_MD5_Checksum, ASCII_NonNegative_Integer, ASCII_Numeric_Base16, ASCII_Numeric_Base2, ASCII_Numeric_Base8, ASCII_Real, ASCII_String, ASCII_Time, ASCII_VID, UTF8_String

attribute: **description** ^{Optional}

attribute: **field_format** ^{Optional}

attribute: **field_length**

attribute: **field_location**

attribute: **field_number** ^{Optional}

attribute: **name**

attribute: **scaling_factor** ^{Optional}

attribute: **unit** ^{Optional}

attribute: **value_offset** ^{Optional}

- **Field_Statistics - occurs 0 to 1 times**

  description: **The Field Statistics class provides a set of metrics for a column formed by a field in a repeating record.**
  role: **Concrete**
  attribute: **description** ^{Optional}
  attribute: **local_identifier** ^{Optional}
  attribute: **maximum** ^{Optional}
  attribute: **mean** ^{Optional}
  attribute: **median** ^{Optional}
  attribute: **minimum** ^{Optional}
  attribute: **standard_deviation** ^{Optional}

- **End** Field_Statistics

- **Special_Constants - occurs 0 to 1 times**

  description: **The Special Constants class provides a set of values used to indicate special cases that occur in the data.**
  role: **Concrete**
  attribute: **error_constant** ^{Optional}
  attribute: **high_instrument_saturation** value: **-32765, 255, 3, 65534, FF7FFFFE, FFFCFFFF** ^{Optional}
  attribute: **high_representation_saturation** value: **-32764, 255, 4, 65535, FF7FFFFF, FFFBFFFF** ^{Optional}
  attribute: **invalid_constant** ^{Optional}
  attribute: **low_instrument_saturation** value: **-32766, 0, 2, FF7FFFFD, FFFDFFFF** ^{Optional}
  attribute: **low_representation_saturation** value: **-32767, 1, 16#FF7FFFFC#, 16#FFFEFFFF#** ^{Optional}
  attribute: **missing_constant** ^{Optional}
  attribute: **not_applicable_constant** ^{Optional}
  attribute: **saturated_constant** ^{Optional}
  attribute: **unknown_constant** ^{Optional}
  attribute: **valid_maximum** value: **254, 32767, 65522** ^{Optional}
  attribute: **valid_minimum** value: **-32752, 1, 3, 5, FF7FFFFA, FFEFFFFF** ^{Optional}

  - **End** Special_Constants
- **End** Field_Character
- **End** Group_Field_Character
- **End** Record_Character

- **Uniformly_Sampled - occurs 0 to 1 times**

  description: **The Uniformly_Sampled class provides parameters for a uniformly sampled table.**
  role: **Concrete**
  attribute: **first_sampling_parameter_value**
  attribute: **last_sampling_parameter_value**
  attribute: **sampling_parameter_interval**

attribute: **sampling_parameter_name**
                        attribute: **sampling_parameter_scale** value: **Exponential, Linear, Logarithmic** ^{Optional}
                        attribute: **sampling_parameter_unit**

                  - **End** Uniformly_Sampled
            - **End** Transfer_Manifest
      - **End** File_Area_Transfer_Manifest

      - **Internal_Reference - occurs 1 to * times**

            description: **The Internal_Reference class is used to cross-reference other products in the PDS
            registry system.**
            role: **Concrete**
            attribute: **comment** ^{Optional}
            attribute: **lid_reference** ^{Optional}
            attribute: **lidvid_reference** ^{Optional}
            attribute: **reference_type**

      - **End** Internal_Reference
- **End** Information_Package_Component

- **Reference_List - occurs 0 to 1 times**

      description: **The Reference_List class provides lists general references and cross-references for the
      product. References cited elsewhere in the label need not be repeated here.**
      role: **Concrete**

      - **External_Reference - occurs 0 to * times**

            description: **The External_Reference class is used to reference a source outside the PDS registry
            system.**
            role: **Concrete**
            attribute: **description** ^{Optional}
            attribute: **doi** ^{Optional}
            attribute: **reference_text**

      - **End** External_Reference

      - **Internal_Reference - occurs 0 to * times**

            description: **The Internal_Reference class is used to cross-reference other products in the PDS
            registry system.**
            role: **Concrete**
            attribute: **comment** ^{Optional}
            attribute: **lid_reference** ^{Optional}
            attribute: **lidvid_reference** ^{Optional}
            attribute: **reference_type**

      - **End** Internal_Reference
- **End** Reference_List
- **End** Product_DIP

- **Product_DIP_Deep_Archive**

description: **The Product DIP_Deep_Archive class defines a product for the Dissemination Information Package for
the deep archive.**
role: **Concrete**

- **DIP_Deep_Archive occurs 1 times**

      description: **The Dissemination Information Package Deep Archive class is an Information Package derived
      from one or more AIPs and is received by the National Space Science Data Center (NSSDC).**
      role: **Concrete**
      attribute: **description**

- **End** DIP_Deep_Archive

- **Identification_Area occurs 1 times**

      description: **The identification area consists of attributes that identify and name an object.**
      role: **Concrete**

attribute: **information_model_version** value: **1.1.0.1**
attribute: **logical_identifier**
attribute: **product_class** value: **Product_DIP_Deep_Archive**
attribute: **title**
attribute: **version_id**

- **Alias_List - occurs 0 to 1 times**

  description: **The Alias_List class provides a list of paired alternate names and identifications for this product in this or some other archive or data system.**
  role: **Concrete**

  - **Alias - occurs 1 to * times**

    description: **The Alias class provides a single alternate name and identification for this product in this or some other archive or data system.**
    role: **Concrete**
    attribute: **alternate_id** Optional
    attribute: **alternate_title** Optional
    attribute: **comment** Optional

  - **End** Alias
- **End** Alias_List

- **Citation_Information - occurs 0 to 1 times**

  description: **The Citation_Information class provides specific fields often used in citing the product in journal articles, abstract services, and other reference contexts.**
  role: **Concrete**
  attribute: **author_list** Optional
  attribute: **description**
  attribute: **editor_list** Optional
  attribute: **keyword** Optional
  attribute: **publication_year**

- **End** Citation_Information

- **Modification_History - occurs 0 to 1 times**

  description: **The Modification_History class tracks the history of changes made to the product once it enters the registry system.**
  role: **Concrete**

  - **Modification_Detail - occurs 1 to * times**

    description: **The Modification_Detail class provides the details of one round of modification for the product. The first, required, instance of this class documents the date the product was first registered.**
    role: **Concrete**
    attribute: **description**
    attribute: **modification_date**
    attribute: **version_id**

  - **End** Modification_Detail
- **End** Modification_History
- **End** Identification_Area

- **Information_Package_Component - occurs 1 to * times**

  description: **The Information_Package_Component class associates a Bundle, Collections or Basic Products with Checksum and Storage Manifests.**
  role: **Concrete**
  attribute: **checksum_manifest_checksum** Optional
  attribute: **checksum_type** Optional
  attribute: **transfer_manifest_checksum** Optional

  - **File_Area_Checksum_Manifest - occurs 0 to 1 times**

    description: **The File Area Checksum Manifest class describes a file that contains a two column table for file references and checksums.**
    role: **Concrete**

    - **Checksum_Manifest occurs 1 times**

description: **The Checksum_Manifest class defines a two column table for file references and checksums. The table structure is compatible with the output from an MD5 checksum utility.**
role: **Concrete**
attribute: **description** ^{Optional}
attribute: **local_identifier** ^{Optional}
attribute: **name** ^{Optional}
attribute: **object_length** ^{Optional}
attribute: **offset**
attribute: **parsing_standard_id** value: **MD5Deep 4.n**
attribute: **record_delimiter** value: **carriage-return line-feed**

- **End** Checksum_Manifest

- **File occurs 1 times**

  description: **The File class consists of attributes that describe a file in a data store.**
  role: **Concrete**
  attribute: **comment** ^{Optional}
  attribute: **creation_date_time** ^{Optional}
  attribute: **file_name**
  attribute: **file_size** ^{Optional}
  attribute: **local_identifier** ^{Optional}
  attribute: **md5_checksum** ^{Optional}
  attribute: **records** ^{Optional}

  - **End** File
- **End** File_Area_Checksum_Manifest

- **File_Area_Transfer_Manifest - occurs 0 to 1 times**

description: **The File Area Transfer Manifest class describes a file that contains a two column table that maps the logical identifiers and version ids of products to their file specification names.**
role: **Concrete**

  - **File occurs 1 times**

    description: **The File class consists of attributes that describe a file in a data store.**
    role: **Concrete**
    attribute: **comment** ^{Optional}
    attribute: **creation_date_time** ^{Optional}
    attribute: **file_name**
    attribute: **file_size** ^{Optional}
    attribute: **local_identifier** ^{Optional}
    attribute: **md5_checksum** ^{Optional}
    attribute: **records** ^{Optional}

  - **End** File

  - **Transfer_Manifest occurs 1 times - Base_Class:Table_Base**

    description: **The Transfer_Manifest class defines a table that maps product LIDVIDs to the file_specificaition_names of the products' XML label files.**
    role: **Concrete**
    attribute: **description** ^{Optional}
    attribute: **local_identifier** ^{Optional}
    attribute: **name** ^{Optional}
    attribute: **offset**
    attribute: **record_delimiter** value: **carriage-return line-feed**
    attribute: **records**

    - **Record_Character occurs 1 times**

      description: **The Record_Character class is a component of the table class and defines a record of the table.**
      role: **Concrete**
      attribute: **fields**
      attribute: **groups**
      attribute: **record_length**

      - **Field_Character - occurs 1 to * times**

description: **The Field_Character class defines a field of a character record or a field of a character group.**
role: **Concrete**
attribute: **data_type** value: **ASCII_AnyURI, ASCII_Boolean, ASCII_DOI, ASCII_Date, ASCII_Date_DOY, ASCII_Date_Time, ASCII_Date_Time_DOY, ASCII_Date_Time_UTC, ASCII_Date_Time_YMD, ASCII_Date_YMD, ASCII_Directory_Path_Name, ASCII_File_Name, ASCII_File_Specification_Name, ASCII_Integer, ASCII_LID, ASCII_LIDVID, ASCII_LIDVID_LID, ASCII_MD5_Checksum, ASCII_NonNegative_Integer, ASCII_Numeric_Base16, ASCII_Numeric_Base2, ASCII_Numeric_Base8, ASCII_Real, ASCII_String, ASCII_Time, ASCII_VID, UTF8_String**
attribute: **description** Optional
attribute: **field_format** Optional
attribute: **field_length**
attribute: **field_location**
attribute: **field_number** Optional
attribute: **name**
attribute: **scaling_factor** Optional
attribute: **unit** Optional
attribute: **value_offset** Optional

- **Field_Statistics - occurs 0 to 1 times**

  description: **The Field Statistics class provides a set of metrics for a column formed by a field in a repeating record.**
  role: **Concrete**
  attribute: **description** Optional
  attribute: **local_identifier** Optional
  attribute: **maximum** Optional
  attribute: **mean** Optional
  attribute: **median** Optional
  attribute: **minimum** Optional
  attribute: **standard_deviation** Optional

- **End** Field_Statistics

- **Special_Constants - occurs 0 to 1 times**

  description: **The Special Constants class provides a set of values used to indicate special cases that occur in the data.**
  role: **Concrete**
  attribute: **error_constant** Optional
  attribute: **high_instrument_saturation** value: **-32765, 255, 3, 65534, FF7FFFFE, FFFCFFFF** Optional
  attribute: **high_representation_saturation** value: **-32764, 255, 4, 65535, FF7FFFFF, FFFBFFFF** Optional
  attribute: **invalid_constant** Optional
  attribute: **low_instrument_saturation** value: **-32766, 0, 2, FF7FFFFD, FFFDFFFF** Optional
  attribute: **low_representation_saturation** value: **-32767, 1, 16#FF7FFFFC#, 16#FFFEFFFF#** Optional
  attribute: **missing_constant** Optional
  attribute: **not_applicable_constant** Optional
  attribute: **saturated_constant** Optional
  attribute: **unknown_constant** Optional
  attribute: **valid_maximum** value: **254, 32767, 65522** Optional
  attribute: **valid_minimum** value: **-32752, 1, 3, 5, FF7FFFFA, FFEFFFFF** Optional

  - **End** Special_Constants
- **End** Field_Character

- **Group_Field_Character - occurs 1 to * times**

  description: **The Group_Field_Character class allows a group of table fields.**
  role: **Concrete**
  attribute: **fields**
  attribute: **group_length**
  attribute: **group_location**
  attribute: **group_number** Optional
  attribute: **groups**
  attribute: **repetitions**

- **Field_Character - occurs 1 to * times**

  description: **The Field_Character class defines a field of a character record or a field of a character group.**
  role: **Concrete**
  attribute: **data_type** value: **ASCII_AnyURI, ASCII_Boolean, ASCII_DOI, ASCII_Date, ASCII_Date_DOY, ASCII_Date_Time, ASCII_Date_Time_DOY, ASCII_Date_Time_UTC, ASCII_Date_Time_YMD, ASCII_Date_YMD, ASCII_Directory_Path_Name, ASCII_File_Name, ASCII_File_Specification_Name, ASCII_Integer, ASCII_LID, ASCII_LIDVID, ASCII_LIDVID_LID, ASCII_MD5_Checksum, ASCII_NonNegative_Integer, ASCII_Numeric_Base16, ASCII_Numeric_Base2, ASCII_Numeric_Base8, ASCII_Real, ASCII_String, ASCII_Time, ASCII_VID, UTF8_String**
  attribute: **description** Optional
  attribute: **field_format** Optional
  attribute: **field_length**
  attribute: **field_location**
  attribute: **field_number** Optional
  attribute: **name**
  attribute: **scaling_factor** Optional
  attribute: **unit** Optional
  attribute: **value_offset** Optional

  - **Field_Statistics - occurs 0 to 1 times**

    description: **The Field Statistics class provides a set of metrics for a column formed by a field in a repeating record.**
    role: **Concrete**
    attribute: **description** Optional
    attribute: **local_identifier** Optional
    attribute: **maximum** Optional
    attribute: **mean** Optional
    attribute: **median** Optional
    attribute: **minimum** Optional
    attribute: **standard_deviation** Optional

  - **End** Field_Statistics

  - **Special_Constants - occurs 0 to 1 times**

    description: **The Special Constants class provides a set of values used to indicate special cases that occur in the data.**
    role: **Concrete**
    attribute: **error_constant** Optional
    attribute: **high_instrument_saturation** value: **-32765, 255, 3, 65534, FF7FFFFE, FFFCFFFF** Optional
    attribute: **high_representation_saturation** value: **-32764, 255, 4, 65535, FF7FFFFF, FFFBFFFF** Optional
    attribute: **invalid_constant** Optional
    attribute: **low_instrument_saturation** value: **-32766, 0, 2, FF7FFFFD, FFFDFFFF** Optional
    attribute: **low_representation_saturation** value: **-32767, 1, 16#FF7FFFFC#, 16#FFFEFFFF#** Optional
    attribute: **missing_constant** Optional
    attribute: **not_applicable_constant** Optional
    attribute: **saturated_constant** Optional
    attribute: **unknown_constant** Optional
    attribute: **valid_maximum** value: **254, 32767, 65522** Optional
    attribute: **valid_minimum** value: **-32752, 1, 3, 5, FF7FFFFA, FFEFFFFF** Optional

    - **End** Special_Constants
  - **End** Field_Character
  - **End** Group_Field_Character
- **End** Record_Character

- **Uniformly_Sampled - occurs 0 to 1 times**

  description: **The Uniformly_Sampled class provides parameters for a uniformly**

sampled table.
role: **Concrete**
attribute: **first_sampling_parameter_value**
attribute: **last_sampling_parameter_value**
attribute: **sampling_parameter_interval**
attribute: **sampling_parameter_name**
attribute: **sampling_parameter_scale** value: **Exponential, Linear, Logarithmic** Optional
attribute: **sampling_parameter_unit**

- **End** Uniformly_Sampled
- **End** Transfer_Manifest
- **End** File_Area_Transfer_Manifest

- **Internal_Reference - occurs 1 to * times**

    description: **The Internal_Reference class is used to cross-reference other products in the PDS registry system.**
    role: **Concrete**
    attribute: **comment** Optional
    attribute: **lid_reference** Optional
    attribute: **lidvid_reference** Optional
    attribute: **reference_type**

    - **End** Internal_Reference
- **End** Information_Package_Component

- **Reference_List - occurs 0 to 1 times**

    description: **The Reference_List class provides lists general references and cross-references for the product. References cited elsewhere in the label need not be repeated here.**
    role: **Concrete**

    - **External_Reference - occurs 0 to * times**

        description: **The External_Reference class is used to reference a source outside the PDS registry system.**
        role: **Concrete**
        attribute: **description** Optional
        attribute: **doi** Optional
        attribute: **reference_text**

        - **End** External_Reference

    - **Internal_Reference - occurs 0 to * times**

        description: **The Internal_Reference class is used to cross-reference other products in the PDS registry system.**
        role: **Concrete**
        attribute: **comment** Optional
        attribute: **lid_reference** Optional
        attribute: **lidvid_reference** Optional
        attribute: **reference_type**

        - **End** Internal_Reference
    - **End** Reference_List
- **End** Product_DIP_Deep_Archive

- **Product_Document**

    description: **A Product Document is a product consisting of a single logical document that may be comprised of one or more document formats.**
    role: **Concrete**

    - **Context_Area - occurs 0 to 1 times**

        description: **The Context Area provides context information for a product.**
        role: **Concrete**
        attribute: **comment** Optional

        - **Discipline_Area - occurs 0 to 1 times**

description: **The Discipline area allows the insertion of discipline specific metadata.**
role: **Concrete**

- **End** Discipline_Area

- **Investigation_Area - occurs 0 to * times**

  description: **The Investigation_Area class provides information about an investigation (mission, observing campaign or other coordinated, large-scale data collection effort).**
  role: **Concrete**
  attribute: **name**
  attribute: **type** value: **Individual Investigation, Mission, Observing Campaign, Other Investigation**

    - **Internal_Reference - occurs 1 to * times**

      description: **The Internal_Reference class is used to cross-reference other products in the PDS registry system.**
      role: **Concrete**
      attribute: **comment** Optional
      attribute: **lid_reference** Optional
      attribute: **lidvid_reference** Optional
      attribute: **reference_type**

        - **End** Internal_Reference
- **End** Investigation_Area

- **Mission_Area - occurs 0 to 1 times**

  description: **The mission area allows the insertion of mission specific metadata.**
  role: **Concrete**

- **End** Mission_Area

- **Observing_System - occurs 0 to * times**

  description: **The Observing System class describes the entire suite used to collect the data.**
  role: **Concrete**
  attribute: **description** Optional
  attribute: **name** Optional

    - **Observing_System_Component - occurs 1 to * times**

      description: **The Observing System Component class references one or more subsystems used to collect data. A subsystem can be an instrument_host, instrument, or any other similar product. Each subsystem is categorized as either a sensor or a source. If the observing system includes both a sensor and a source, Observing System Component occurs twice (once for each type) otherwise it only occurs once.**
      role: **Concrete**
      attribute: **description** Optional
      attribute: **name**
      attribute: **type** value: **Artificial Illumination, Instrument, Laboratory, Literature Search, Naked Eye, Observatory, Spacecraft, Telescope**

        - **External_Reference - occurs 0 to * times**

          description: **The External_Reference class is used to reference a source outside the PDS registry system.**
          role: **Concrete**
          attribute: **description** Optional
          attribute: **doi** Optional
          attribute: **reference_text**

        - **End** External_Reference

        - **Internal_Reference - occurs 0 to 1 times**

          description: **The Internal_Reference class is used to cross-reference other products in the PDS registry system.**
          role: **Concrete**
          attribute: **comment** Optional
          attribute: **lid_reference** Optional
          attribute: **lidvid_reference** Optional
          attribute: **reference_type**

- **End** Internal_Reference
  - **End** Observing_System_Component
- **End** Observing_System

- **Primary_Result_Summary - occurs 0 to 1 times**

  description: **The Primary_Result_Summary class provides a high-level description of the types of products included in the collection or bundle**
  role: **Concrete**
  attribute: **data_regime** value: **Dust, Electric Field, Electrons, Far Infrared, Gamma Ray, Infrared, Ions, Magnetic Field, Microwave, Millimeter, Near Infrared, Particles, Pressure, Radio, Sub-Millimeter, Temperature, Ultraviolet, Visible, X-Ray** Optional
  attribute: **description** Optional
  attribute: **processing_level** value: **Calibrated, Derived, Partially Processed, Raw, Telemetry**
  attribute: **processing_level_id** value: **Calibrated, Derived, Partially Processed, Raw, Telemetry** Optional
  attribute: **purpose** value: **Calibration, Checkout, Engineering, Navigation, Science**
  attribute: **type** value: **Altimetry, Astrometry, Count, E/B-Field Vectors, Gravity Model, Image, Lightcurves, Map, Meteorology, Null Result, Occultation, Photometry, Physical Parameters, Polarimetry, Radiometry, Reference, Shape Model, Spectrum** Optional

  - **Science_Facets - occurs 0 to * times**

    description: **The Science_Facets class contains the science-related search facets. It is optional and may be repeated if an product has facets related to, for example, two different disciplines (as defined by the discipline_name facet). Note that Science_Facets was modeled with Discipline_Facets as a component and Discipline_Facets was modeled with Group_Facet1 and Group_Facet2 as components. This dependency hierarchy was flattened and only Science_Facets exists in the schema.**
    role: **Concrete**
    attribute: **domain** value: **Atmosphere, Heliosphere, Interior, Interstellar, Ionosphere, Magnetosphere, Surface** Optional
    attribute: **wavelength_range** value: **Far Infrared, Gamma Ray, Infrared, Microwave, Millimeter, Near Infrared, Radio, Submillimeter, Ultraviolet, Visible, X-ray** Optional

    - **Discipline_Facets occurs 1 times**

      description: **The Discipline_Facets class contains the discipline-related search facets. It is required and may not be repeated. Note that Science_Facets was modeled with Discipline_Facets as a component and Discipline_Facets was modeled with Group_Facet1 and Group_Facet2 as components. This dependency hierarchy was flattened and only Science_Facets exists in the schema.**
      role: **Concrete**
      attribute: **discipline_name** value: **Atmospheres, Fields, Flux Measurements, Imaging, Particles, Ring-Moon Systems, Small Bodies, Spectroscopy**

      - **Group_Facet1 - occurs 0 to * times**

        description: **The Group_Facet1 class contains a single facet restricted according to the value of discipline_name. It also contains zero or more subfacets restricted according to the value of the facet. Note that Science_Facets was modeled with Discipline_Facets as a component and Discipline_Facets was modeled with Group_Facet1 and Group_Facet2 as components. This dependency hierarchy was flattened and only Science_Facets exists in the schema.**
        role: **Concrete**
        attribute: **facet1** value: **2D, Color, Color Movie, Dust Study, Dynamical Properties, Electric, Electrons, Gas Study, Grayscale, Historical Reference, Ions, Lightcurve, Linear, Magnetic, Meteoritics, Meteorology, Movie, Neutrals, Photometry, Physical Properties, Polarimetry, Production Rates, Ring Compositional Map, Ring Occultation Profile, Ring Thermal Map, Satellite Astrometry, Shape Model, Spectral Cube, Spectral Image, Structure, Tabulated, Taxonomy** Optional
        attribute: **subfacet1** Optional

      - **End** Group_Facet1

      - **Group_Facet2 - occurs 0 to * times**

        description: **The Group_Facet2 class contains a single facet restricted according to the value of discipline_name. It also contains zero or more subfacets restricted according to the value of the facet. Note that Science_Facets was modeled with Discipline_Facets as a component and Discipline_Facets was modeled with Group_Facet1 and Group_Facet2 as components. This dependency hierarchy was flattened and only**

Science_Facets exists in the schema.
role: **Concrete**
attribute: **facet2** value: **Background, Cosmic Ray, Energetic, Plasma, Solar Energetic, Waves** ^{Optional}
attribute: **subfacet2** ^{Optional}

- **End** Group_Facet2
- **End** Discipline_Facets
- **End** Science_Facets
- **End** Primary_Result_Summary

- **Target_Identification - occurs 0 to * times**

  description: **The Target_Identification class provides detailed target identification information.**
  role: **Concrete**
  attribute: **alternate_designation** ^{Optional}
  attribute: **description** ^{Optional}
  attribute: **name**
  attribute: **type** value: **Asteroid, Comet, Dust, Dwarf Planet, Galaxy, Globular Cluster, Meteorite, Meteoroid, Meteoroid Stream, Nebula, Open Cluster, Planet, Planetary Nebula, Planetary System, Plasma Cloud, Ring, Satellite, Star, Star Cluster, Sun, Terrestrial Sample, Trans-Neptunian Object**

  - **Internal_Reference - occurs 0 to 1 times**

    description: **The Internal_Reference class is used to cross-reference other products in the PDS registry system.**
    role: **Concrete**
    attribute: **comment** ^{Optional}
    attribute: **lid_reference** ^{Optional}
    attribute: **lidvid_reference** ^{Optional}
    attribute: **reference_type**

    - **End** Internal_Reference
- **End** Target_Identification

- **Time_Coordinates - occurs 0 to 1 times**

  description: **The Time_Coordinates class provides a list of time coordinates.**
  role: **Concrete**
  attribute: **local_mean_solar_time** ^{Optional}
  attribute: **local_true_solar_time** ^{Optional}
  attribute: **solar_longitude** ^{Optional}
  attribute: **start_date_time**
  attribute: **stop_date_time**

  - **End** Time_Coordinates
- **End** Context_Area

- **Document occurs 1 times**

  description: **The Document class describes a document.**
  role: **Concrete**
  attribute: **acknowledgement_text** ^{Optional}
  attribute: **author_list** ^{Optional}
  attribute: **copyright** ^{Optional}
  attribute: **description** ^{Optional}
  attribute: **document_name** ^{Optional}
  attribute: **doi** ^{Optional}
  attribute: **editor_list** ^{Optional}
  attribute: **publication_date**
  attribute: **revision_id** ^{Optional}

- **End** Document

- **Document_Format_Set - occurs 1 to * times**

  description: **The Document Format Set class is a set consisting of a document format and associated files.**
  role: **Concrete**

  - **Document_File - occurs 1 to * times**

    description: **The Document File class describes a file which is a part of a document.**

role: **Concrete**

attribute: **comment** ^{Optional}

attribute: **creation_date_time** ^{Optional}

attribute: **directory_path_name** ^{Optional}

attribute: **document_standard_id** value: **7-Bit ASCII Text, Encapsulated Postscript, GIF, HTML 2.0, HTML 3.2, HTML 4.0, HTML 4.01, JPEG, LaTEX, Microsoft Word, PDF, PDF/A, PNG, Postscript, Rich Text, TIFF, UTF-8 Text**

attribute: **file_name**

attribute: **file_size** ^{Optional}

attribute: **local_identifier** ^{Optional}

attribute: **md5_checksum** ^{Optional}

attribute: **records** ^{Optional}

- **End** Document_File

- **Document_Format occurs 1 times**

  description: **The Document Format provides a description of a variant of a logical document that is stored in a specific format. For example the PDS Standards Reference has HTML and PDF formatted versions.**
  role: **Concrete**

  attribute: **description** ^{Optional}

  attribute: **format_type** value: **multiple file, single file**

  attribute: **starting_point_identifier** ^{Optional}

  - **End** Document_Format
- **End** Document_Format_Set

- **Identification_Area occurs 1 times**

  description: **The identification area consists of attributes that identify and name an object.**
  role: **Concrete**
  attribute: **information_model_version** value: **1.1.0.1**
  attribute: **logical_identifier**
  attribute: **product_class** value: **Product_Document**
  attribute: **title**
  attribute: **version_id**

  - **Alias_List - occurs 0 to 1 times**

    description: **The Alias_List class provides a list of paired alternate names and identifications for this product in this or some other archive or data system.**
    role: **Concrete**

    - **Alias - occurs 1 to * times**

      description: **The Alias class provides a single alternate name and identification for this product in this or some other archive or data system.**
      role: **Concrete**
      attribute: **alternate_id** ^{Optional}
      attribute: **alternate_title** ^{Optional}
      attribute: **comment** ^{Optional}

    - **End** Alias
  - **End** Alias_List

  - **Citation_Information - occurs 0 to 1 times**

    description: **The Citation_Information class provides specific fields often used in citing the product in journal articles, abstract services, and other reference contexts.**
    role: **Concrete**
    attribute: **author_list** ^{Optional}
    attribute: **description**
    attribute: **editor_list** ^{Optional}
    attribute: **keyword** ^{Optional}
    attribute: **publication_year**

  - **End** Citation_Information

  - **Modification_History - occurs 0 to 1 times**

    description: **The Modification_History class tracks the history of changes made to the product once it enters the registry system.**

role: **Concrete**

- **Modification_Detail - occurs 1 to * times**

  description: **The Modification_Detail class provides the details of one round of modification for the product. The first, required, instance of this class documents the date the product was first registered.**
  role: **Concrete**
  attribute: **description**
  attribute: **modification_date**
  attribute: **version_id**

  - **End** Modification_Detail
- **End** Modification_History
- **End** Identification_Area

- **Reference_List - occurs 0 to 1 times**

  description: **The Reference_List class provides lists general references and cross-references for the product. References cited elsewhere in the label need not be repeated here.**
  role: **Concrete**

  - **External_Reference - occurs 0 to * times**

    description: **The External_Reference class is used to reference a source outside the PDS registry system.**
    role: **Concrete**
    attribute: **description** Optional
    attribute: **doi** Optional
    attribute: **reference_text**

  - **End** External_Reference

  - **Internal_Reference - occurs 0 to * times**

    description: **The Internal_Reference class is used to cross-reference other products in the PDS registry system.**
    role: **Concrete**
    attribute: **comment** Optional
    attribute: **lid_reference** Optional
    attribute: **lidvid_reference** Optional
    attribute: **reference_type**

  - **End** Internal_Reference
- **End** Reference_List
- **End** Product_Document

- **Product_File_Repository**

description: **The Product File Repository class consists of a single text file. This product is used to register a file in a repository.**
role: **Concrete**

- **File_Area_Binary occurs 1 times**

  description: **The File Area Binary class describes a file that contains an encoded byte stream.**
  role: **Concrete**

  - **Encoded_Binary - occurs 0 to * times**

    description: **The Encoded Binary class describes a binary encoded byte stream. This class is used to describe files in the repository that are being registered using Product_File_Repository.**
    role: **Concrete**
    attribute: **description** Optional
    attribute: **encoding_standard_id** value: **CCSDS Communication Protocols**
    attribute: **local_identifier** Optional
    attribute: **name** Optional
    attribute: **object_length** Optional
    attribute: **offset**

  - **End** Encoded_Binary

- **File occurs 1 times**

  description: **The File class consists of attributes that describe a file in a data store.**
  role: **Concrete**
  attribute: **comment** ^{Optional}
  attribute: **creation_date_time** ^{Optional}
  attribute: **file_name**
  attribute: **file_size** ^{Optional}
  attribute: **local_identifier** ^{Optional}
  attribute: **md5_checksum** ^{Optional}
  attribute: **records** ^{Optional}

  - **End** File
- **End** File_Area_Binary

- **Identification_Area occurs 1 times**

  description: **The identification area consists of attributes that identify and name an object.**
  role: **Concrete**
  attribute: **information_model_version** value: **1.1.0.1**
  attribute: **logical_identifier**
  attribute: **product_class** value: **Product_File_Repository**
  attribute: **title**
  attribute: **version_id**

  - **Alias_List - occurs 0 to 1 times**

    description: **The Alias_List class provides a list of paired alternate names and identifications for this product in this or some other archive or data system.**
    role: **Concrete**

    - **Alias - occurs 1 to * times**

      description: **The Alias class provides a single alternate name and identification for this product in this or some other archive or data system.**
      role: **Concrete**
      attribute: **alternate_id** ^{Optional}
      attribute: **alternate_title** ^{Optional}
      attribute: **comment** ^{Optional}

    - **End** Alias
  - **End** Alias_List

  - **Citation_Information - occurs 0 to 1 times**

    description: **The Citation_Information class provides specific fields often used in citing the product in journal articles, abstract services, and other reference contexts.**
    role: **Concrete**
    attribute: **author_list** ^{Optional}
    attribute: **description**
    attribute: **editor_list** ^{Optional}
    attribute: **keyword** ^{Optional}
    attribute: **publication_year**

  - **End** Citation_Information

  - **Modification_History - occurs 0 to 1 times**

    description: **The Modification_History class tracks the history of changes made to the product once it enters the registry system.**
    role: **Concrete**

    - **Modification_Detail - occurs 1 to * times**

      description: **The Modification_Detail class provides the details of one round of modification for the product. The first, required, instance of this class documents the date the product was first registered.**
      role: **Concrete**
      attribute: **description**
      attribute: **modification_date**
      attribute: **version_id**

    - **End** Modification_Detail

- **End** Modification_History
- **End** Identification_Area

- **Reference_List - occurs 0 to 1 times**

  description: **The Reference_List class provides lists general references and cross-references for the product. References cited elsewhere in the label need not be repeated here.**
  role: **Concrete**

  - **External_Reference - occurs 0 to * times**

    description: **The External_Reference class is used to reference a source outside the PDS registry system.**
    role: **Concrete**
    attribute: **description** Optional
    attribute: **doi** Optional
    attribute: **reference_text**

  - **End** External_Reference

  - **Internal_Reference - occurs 0 to * times**

    description: **The Internal_Reference class is used to cross-reference other products in the PDS registry system.**
    role: **Concrete**
    attribute: **comment** Optional
    attribute: **lid_reference** Optional
    attribute: **lidvid_reference** Optional
    attribute: **reference_type**

  - **End** Internal_Reference
- **End** Reference_List
- **End** Product_File_Repository

- **Product_File_Text**

  description: **The Product File Text consists of a single text file with ASCII character encoding.**
  role: **Concrete**

  - **File_Area_Text occurs 1 times**

    description: **The File Area Text class describes a file that contains a text stream object.**
    role: **Concrete**

    - **File occurs 1 times**

      description: **The File class consists of attributes that describe a file in a data store.**
      role: **Concrete**
      attribute: **comment** Optional
      attribute: **creation_date_time** Optional
      attribute: **file_name**
      attribute: **file_size** Optional
      attribute: **local_identifier** Optional
      attribute: **md5_checksum** Optional
      attribute: **records** Optional

    - **End** File

    - **Stream_Text occurs 1 times**

      description: **The Stream text class defines a text object.**
      role: **Concrete**
      attribute: **description** Optional
      attribute: **local_identifier** Optional
      attribute: **name** Optional
      attribute: **object_length** Optional
      attribute: **offset**
      attribute: **parsing_standard_id**
      attribute: **record_delimiter** value: **carriage-return line-feed**

- **End** Stream_Text
- **End** File_Area_Text

- **Identification_Area occurs 1 times**

  description: **The identification area consists of attributes that identify and name an object.**
  role: **Concrete**
  attribute: **information_model_version** value: **1.1.0.1**
  attribute: **logical_identifier**
  attribute: **product_class** value: **Product_File_Text**
  attribute: **title**
  attribute: **version_id**

    - **Alias_List - occurs 0 to 1 times**

      description: **The Alias_List class provides a list of paired alternate names and identifications for this product in this or some other archive or data system.**
      role: **Concrete**

        - **Alias - occurs 1 to * times**

          description: **The Alias class provides a single alternate name and identification for this product in this or some other archive or data system.**
          role: **Concrete**
          attribute: **alternate_id** Optional
          attribute: **alternate_title** Optional
          attribute: **comment** Optional

        - **End** Alias
    - **End** Alias_List

    - **Citation_Information - occurs 0 to 1 times**

      description: **The Citation_Information class provides specific fields often used in citing the product in journal articles, abstract services, and other reference contexts.**
      role: **Concrete**
      attribute: **author_list** Optional
      attribute: **description**
      attribute: **editor_list** Optional
      attribute: **keyword** Optional
      attribute: **publication_year**

    - **End** Citation_Information

    - **Modification_History - occurs 0 to 1 times**

      description: **The Modification_History class tracks the history of changes made to the product once it enters the registry system.**
      role: **Concrete**

        - **Modification_Detail - occurs 1 to * times**

          description: **The Modification_Detail class provides the details of one round of modification for the product. The first, required, instance of this class documents the date the product was first registered.**
          role: **Concrete**
          attribute: **description**
          attribute: **modification_date**
          attribute: **version_id**

        - **End** Modification_Detail
    - **End** Modification_History
- **End** Identification_Area

- **Reference_List - occurs 0 to 1 times**

  description: **The Reference_List class provides lists general references and cross-references for the product. References cited elsewhere in the label need not be repeated here.**
  role: **Concrete**

    - **External_Reference - occurs 0 to * times**

      description: **The External_Reference class is used to reference a source outside the PDS registry**

system.
role: **Concrete**
attribute: **description** Optional
attribute: **doi** Optional
attribute: **reference_text**

- **End** External_Reference

- **Internal_Reference - occurs 0 to * times**

  description: **The Internal_Reference class is used to cross-reference other products in the PDS registry system.**
  role: **Concrete**
  attribute: **comment** Optional
  attribute: **lid_reference** Optional
  attribute: **lidvid_reference** Optional
  attribute: **reference_type**

  - **End** Internal_Reference
- **End** Reference_List
- **End** Product_File_Text

- **Product_Instrument_Host_PDS3**

  description: **An Instrument Host product describes an instrument host. This product captures the PDS3 catalog instrument host information.**
  role: **Concrete**

  - **Identification_Area occurs 1 times**

    description: **The identification area consists of attributes that identify and name an object.**
    role: **Concrete**
    attribute: **information_model_version** value: **1.1.0.1**
    attribute: **logical_identifier**
    attribute: **product_class** value: **Product_Instrument_Host_PDS3**
    attribute: **title**
    attribute: **version_id**

    - **Alias_List - occurs 0 to 1 times**

      description: **The Alias_List class provides a list of paired alternate names and identifications for this product in this or some other archive or data system.**
      role: **Concrete**

      - **Alias - occurs 1 to * times**

        description: **The Alias class provides a single alternate name and identification for this product in this or some other archive or data system.**
        role: **Concrete**
        attribute: **alternate_id** Optional
        attribute: **alternate_title** Optional
        attribute: **comment** Optional

      - **End** Alias
    - **End** Alias_List

    - **Citation_Information - occurs 0 to 1 times**

      description: **The Citation_Information class provides specific fields often used in citing the product in journal articles, abstract services, and other reference contexts.**
      role: **Concrete**
      attribute: **author_list** Optional
      attribute: **description**
      attribute: **editor_list** Optional
      attribute: **keyword** Optional
      attribute: **publication_year**

    - **End** Citation_Information

    - **Modification_History - occurs 0 to 1 times**

description: **The Modification_History class tracks the history of changes made to the product once it enters the registry system.**
role: **Concrete**

- **Modification_Detail - occurs 1 to * times**

  description: **The Modification_Detail class provides the details of one round of modification for the product. The first, required, instance of this class documents the date the product was first registered.**
  role: **Concrete**
  attribute: **description**
  attribute: **modification_date**
  attribute: **version_id**

  - **End** Modification_Detail
- **End** Modification_History
- **End** Identification_Area

- **Instrument_Host_PDS3 occurs 1 times**

  description: **The Instrument Host class provides a description of the phyiscal object upon which an instrument is mounted. This class captures the PDS3 catalog Instrument Host information.**
  role: **Concrete**
  attribute: **instrument_host_desc**
  attribute: **instrument_host_id**
  attribute: **instrument_host_name**
  attribute: **instrument_host_type**

- **End** Instrument_Host_PDS3

- **Reference_List - occurs 0 to 1 times**

  description: **The Reference_List class provides lists general references and cross-references for the product. References cited elsewhere in the label need not be repeated here.**
  role: **Concrete**

  - **External_Reference - occurs 0 to * times**

    description: **The External_Reference class is used to reference a source outside the PDS registry system.**
    role: **Concrete**
    attribute: **description** Optional
    attribute: **doi** Optional
    attribute: **reference_text**

  - **End** External_Reference

  - **Internal_Reference - occurs 0 to * times**

    description: **The Internal_Reference class is used to cross-reference other products in the PDS registry system.**
    role: **Concrete**
    attribute: **comment** Optional
    attribute: **lid_reference** Optional
    attribute: **lidvid_reference** Optional
    attribute: **reference_type**

  - **End** Internal_Reference
- **End** Reference_List
- **End** Product_Instrument_Host_PDS3

- **Product_Instrument_PDS3**

  description: **An Instrument product describes an instrument. This product captures the PDS3 catalog instrument information.**
  role: **Concrete**

  - **Identification_Area occurs 1 times**

    description: **The identification area consists of attributes that identify and name an object.**
    role: **Concrete**
    attribute: **information_model_version** value: **1.1.0.1**

attribute: **logical_identifier**
attribute: **product_class** value: **Product_Instrument_PDS3**
attribute: **title**
attribute: **version_id**

- **Alias_List - occurs 0 to 1 times**

  description: **The Alias_List class provides a list of paired alternate names and identifications for this product in this or some other archive or data system.**
  role: **Concrete**

  - **Alias - occurs 1 to * times**

    description: **The Alias class provides a single alternate name and identification for this product in this or some other archive or data system.**
    role: **Concrete**
    attribute: **alternate_id** Optional
    attribute: **alternate_title** Optional
    attribute: **comment** Optional

  - **End** Alias
- **End** Alias_List

- **Citation_Information - occurs 0 to 1 times**

  description: **The Citation_Information class provides specific fields often used in citing the product in journal articles, abstract services, and other reference contexts.**
  role: **Concrete**
  attribute: **author_list** Optional
  attribute: **description**
  attribute: **editor_list** Optional
  attribute: **keyword** Optional
  attribute: **publication_year**

- **End** Citation_Information

- **Modification_History - occurs 0 to 1 times**

  description: **The Modification_History class tracks the history of changes made to the product once it enters the registry system.**
  role: **Concrete**

  - **Modification_Detail - occurs 1 to * times**

    description: **The Modification_Detail class provides the details of one round of modification for the product. The first, required, instance of this class documents the date the product was first registered.**
    role: **Concrete**
    attribute: **description**
    attribute: **modification_date**
    attribute: **version_id**

  - **End** Modification_Detail
- **End** Modification_History
- **End** Identification_Area

- **Instrument_PDS3 occurs 1 times**

  description: **The Instrument class provides a description of a phyiscal object that collects data. This class captures the PDS3 catalog Instrument information.**
  role: **Concrete**
  attribute: **instrument_desc**
  attribute: **instrument_id**
  attribute: **instrument_name**
  attribute: **instrument_serial_number**
  attribute: **instrument_type**
  attribute: **instrument_version_id**

- **End** Instrument_PDS3

- **Reference_List - occurs 0 to 1 times**

  description: **The Reference_List class provides lists general references and cross-references for the product. References cited elsewhere in the label need not be repeated here.**

role: **Concrete**

- **External_Reference - occurs 0 to * times**

  description: **The External_Reference class is used to reference a source outside the PDS registry system.**
  role: **Concrete**
  attribute: **description** ^{Optional}
  attribute: **doi** ^{Optional}
  attribute: **reference_text**

- **End** External_Reference

- **Internal_Reference - occurs 0 to * times**

  description: **The Internal_Reference class is used to cross-reference other products in the PDS registry system.**
  role: **Concrete**
  attribute: **comment** ^{Optional}
  attribute: **lid_reference** ^{Optional}
  attribute: **lidvid_reference** ^{Optional}
  attribute: **reference_type**

  - **End** Internal_Reference
- **End** Reference_List
- **End** Product_Instrument_PDS3

- ## **Product_Mission_PDS3**

  description: **An Mission product describes a mission. This product captures the PDS3 catalog mission information.**
  role: **Concrete**

  - **Identification_Area occurs 1 times**

    description: **The identification area consists of attributes that identify and name an object.**
    role: **Concrete**
    attribute: **information_model_version** value: **1.1.0.1**
    attribute: **logical_identifier**
    attribute: **product_class** value: **Product_Mission_PDS3**
    attribute: **title**
    attribute: **version_id**

    - **Alias_List - occurs 0 to 1 times**

      description: **The Alias_List class provides a list of paired alternate names and identifications for this product in this or some other archive or data system.**
      role: **Concrete**

      - **Alias - occurs 1 to * times**

        description: **The Alias class provides a single alternate name and identification for this product in this or some other archive or data system.**
        role: **Concrete**
        attribute: **alternate_id** ^{Optional}
        attribute: **alternate_title** ^{Optional}
        attribute: **comment** ^{Optional}

      - **End** Alias
    - **End** Alias_List

    - **Citation_Information - occurs 0 to 1 times**

      description: **The Citation_Information class provides specific fields often used in citing the product in journal articles, abstract services, and other reference contexts.**
      role: **Concrete**
      attribute: **author_list** ^{Optional}
      attribute: **description**
      attribute: **editor_list** ^{Optional}
      attribute: **keyword** ^{Optional}
      attribute: **publication_year**

- **End** Citation_Information

- **Modification_History - occurs 0 to 1 times**

  description: **The Modification_History class tracks the history of changes made to the product once it enters the registry system.**
  role: **Concrete**

  - **Modification_Detail - occurs 1 to * times**

    description: **The Modification_Detail class provides the details of one round of modification for the product. The first, required, instance of this class documents the date the product was first registered.**
    role: **Concrete**
    attribute: **description**
    attribute: **modification_date**
    attribute: **version_id**

    - **End** Modification_Detail
  - **End** Modification_History
- **End** Identification_Area

- **Mission_PDS3 occurs 1 times**

  description: **The Mission PDS3 class describes an activity involved in the collection of data. This class captures the PDS3 catalog Mission information.**
  role: **Concrete**
  attribute: **mission_desc**
  attribute: **mission_name**
  attribute: **mission_objectives_summary**
  attribute: **mission_start_date**
  attribute: **mission_stop_date**

- **End** Mission_PDS3

- **Reference_List - occurs 0 to 1 times**

  description: **The Reference_List class provides lists general references and cross-references for the product. References cited elsewhere in the label need not be repeated here.**
  role: **Concrete**

  - **External_Reference - occurs 0 to * times**

    description: **The External_Reference class is used to reference a source outside the PDS registry system.**
    role: **Concrete**
    attribute: **description** Optional
    attribute: **doi** Optional
    attribute: **reference_text**

  - **End** External_Reference

  - **Internal_Reference - occurs 0 to * times**

    description: **The Internal_Reference class is used to cross-reference other products in the PDS registry system.**
    role: **Concrete**
    attribute: **comment** Optional
    attribute: **lid_reference** Optional
    attribute: **lidvid_reference** Optional
    attribute: **reference_type**

    - **End** Internal_Reference
  - **End** Reference_List
- **End** Product_Mission_PDS3

- **Product_Observational**

  description: **A Product_Observational is a set of one or more information objects produced by an observing system.**
  role: **Concrete**

  - **File_Area_Observational - occurs 1 to * times**

description: **The File Area Observational class describes, for an observational product, a file and one or more tagged_data_objects contained within the file.**
role: **Concrete**

- **Array_1D - occurs 1 to * times**

  description: **The Array 1D class is the parent class for all one dimensional array based classes.**
  role: **Concrete**
  attribute: **axes** value: **1**
  attribute: **axis_index_order** value: **Last Index Fastest**
  attribute: **description** Optional
  attribute: **local_identifier** Optional
  attribute: **name** Optional
  attribute: **offset**

  - **Axis_Array occurs 1 times**

    description: **The Axis Array class is used as a component of the array class and defines an axis of the array.**
    role: **Concrete**
    attribute: **axis_name**
    attribute: **elements**
    attribute: **local_identifier** Optional
    attribute: **sequence_number**
    attribute: **unit** Optional

    - **Band_Bin_Set - occurs 0 to 1 times**

      description: **The Band_Bin_Set class contains the spectral characteristics for all the spectral bands in a qube.**
      role: **Concrete**

      - **Band_Bin - occurs 1 to * times**

        description: **The Band_Bin class specifies the characteristics of an individual spectral band in a spectral qube.**
        role: **Concrete**
        attribute: **band_number**
        attribute: **band_width**
        attribute: **center_wavelength**
        attribute: **detector_number** Optional
        attribute: **filter_number** Optional
        attribute: **grating_position** Optional
        attribute: **original_band** Optional
        attribute: **scaling_factor** Optional
        attribute: **standard_deviation** Optional
        attribute: **value_offset** Optional

      - **End** Band_Bin
    - **End** Band_Bin_Set
  - **End** Axis_Array

  - **Element_Array occurs 1 times**

    description: **The Element Array class is used as a component of the array class and defines an element of the array.**
    role: **Concrete**
    attribute: **data_type** value: **ComplexLSB16, ComplexLSB8, ComplexMSB16, ComplexMSB8, IEEE754LSBDouble, IEEE754LSBSingle, IEEE754MSBDouble, IEEE754MSBSingle, SignedBitString, SignedByte, SignedLSB2, SignedLSB4, SignedLSB8, SignedMSB2, SignedMSB4, SignedMSB8, UnsignedBitString, UnsignedByte, UnsignedLSB2, UnsignedLSB4, UnsignedLSB8, UnsignedMSB2, UnsignedMSB4, UnsignedMSB8**
    attribute: **scaling_factor** Optional
    attribute: **unit** Optional
    attribute: **value_offset** Optional

  - **End** Element_Array

  - **Object_Statistics - occurs 0 to 1 times**

    description: **The Object Statistics class provides a set of values that provide metrics about the object.**

      role: **Concrete**

      attribute: **bit_mask** ^{Optional}

      attribute: **description** ^{Optional}

      attribute: **local_identifier** ^{Optional}

      attribute: **maximum** ^{Optional}

      attribute: **maximum_scaled_value** ^{Optional}

      attribute: **md5_checksum** ^{Optional}

      attribute: **mean** ^{Optional}

      attribute: **median** ^{Optional}

      attribute: **minimum** ^{Optional}

      attribute: **minimum_scaled_value** ^{Optional}

      attribute: **standard_deviation** ^{Optional}

- **End** Object_Statistics

- **Special_Constants - occurs 0 to 1 times**

  description: **The Special Constants class provides a set of values used to indicate special cases that occur in the data.**
  role: **Concrete**

  attribute: **error_constant** ^{Optional}

  attribute: **high_instrument_saturation** value: **-32765, 255, 3, 65534, FF7FFFFE, FFFCFFFF** ^{Optional}

  attribute: **high_representation_saturation** value: **-32764, 255, 4, 65535, FF7FFFFF, FFFBFFFF** ^{Optional}

  attribute: **invalid_constant** ^{Optional}

  attribute: **low_instrument_saturation** value: **-32766, 0, 2, FF7FFFFD, FFFDFFFF** ^{Optional}

  attribute: **low_representation_saturation** value: **-32767, 1, 16#FF7FFFFC#, 16#FFFEFFFF#** ^{Optional}

  attribute: **missing_constant** ^{Optional}

  attribute: **not_applicable_constant** ^{Optional}

  attribute: **saturated_constant** ^{Optional}

  attribute: **unknown_constant** ^{Optional}

  attribute: **valid_maximum** value: **254, 32767, 65522** ^{Optional}

  attribute: **valid_minimum** value: **-32752, 1, 3, 5, FF7FFFFA, FFEFFFFF** ^{Optional}

  - **End** Special_Constants
- **End** Array_1D

- **Array_2D - occurs 1 to * times**

  description: **The Array 2D class is the parent class for all two dimensional array based classes.**
  role: **Concrete**
  attribute: **axes** value: **2**
  attribute: **axis_index_order** value: **Last Index Fastest**
  attribute: **description** ^{Optional}
  attribute: **local_identifier** ^{Optional}
  attribute: **name** ^{Optional}
  attribute: **offset**

  - **Axis_Array occurs 2 times**

    description: **The Axis Array class is used as a component of the array class and defines an axis of the array.**
    role: **Concrete**
    attribute: **axis_name**
    attribute: **elements**
    attribute: **local_identifier** ^{Optional}
    attribute: **sequence_number**
    attribute: **unit** ^{Optional}

    - **Band_Bin_Set - occurs 0 to 1 times**

      description: **The Band_Bin_Set class contains the spectral characteristics for all the spectral bands in a qube.**
      role: **Concrete**

      - **Band_Bin - occurs 1 to * times**

        description: **The Band_Bin class specifies the characteristics of an individual spectral band in a spectral qube.**

role: **Concrete**
attribute: **band_number**
attribute: **band_width**
attribute: **center_wavelength**
attribute: **detector_number** Optional
attribute: **filter_number** Optional
attribute: **grating_position** Optional
attribute: **original_band** Optional
attribute: **scaling_factor** Optional
attribute: **standard_deviation** Optional
attribute: **value_offset** Optional

- **End** Band_Bin
- **End** Band_Bin_Set
- **End** Axis_Array

- **Element_Array occurs 1 times**

  description: **The Element Array class is used as a component of the array class and defines an element of the array.**
  role: **Concrete**
  attribute: **data_type** value: **ComplexLSB16, ComplexLSB8, ComplexMSB16, ComplexMSB8, IEEE754LSBDouble, IEEE754LSBSingle, IEEE754MSBDouble, IEEE754MSBSingle, SignedBitString, SignedByte, SignedLSB2, SignedLSB4, SignedLSB8, SignedMSB2, SignedMSB4, SignedMSB8, UnsignedBitString, UnsignedByte, UnsignedLSB2, UnsignedLSB4, UnsignedLSB8, UnsignedMSB2, UnsignedMSB4, UnsignedMSB8**
  attribute: **scaling_factor** Optional
  attribute: **unit** Optional
  attribute: **value_offset** Optional

- **End** Element_Array

- **Object_Statistics - occurs 0 to 1 times**

  description: **The Object Statistics class provides a set of values that provide metrics about the object.**
  role: **Concrete**
  attribute: **bit_mask** Optional
  attribute: **description** Optional
  attribute: **local_identifier** Optional
  attribute: **maximum** Optional
  attribute: **maximum_scaled_value** Optional
  attribute: **md5_checksum** Optional
  attribute: **mean** Optional
  attribute: **median** Optional
  attribute: **minimum** Optional
  attribute: **minimum_scaled_value** Optional
  attribute: **standard_deviation** Optional

- **End** Object_Statistics

- **Special_Constants - occurs 0 to 1 times**

  description: **The Special Constants class provides a set of values used to indicate special cases that occur in the data.**
  role: **Concrete**
  attribute: **error_constant** Optional
  attribute: **high_instrument_saturation** value: **-32765, 255, 3, 65534, FF7FFFFE, FFFCFFFF** Optional
  attribute: **high_representation_saturation** value: **-32764, 255, 4, 65535, FF7FFFFF, FFFBFFFF** Optional
  attribute: **invalid_constant** Optional
  attribute: **low_instrument_saturation** value: **-32766, 0, 2, FF7FFFFD, FFFDFFFF** Optional
  attribute: **low_representation_saturation** value: **-32767, 1, 16#FF7FFFFC#, 16#FFFEFFFF#** Optional
  attribute: **missing_constant** Optional
  attribute: **not_applicable_constant** Optional
  attribute: **saturated_constant** Optional
  attribute: **unknown_constant** Optional
  attribute: **valid_maximum** value: **254, 32767, 65522** Optional
  attribute: **valid_minimum** value: **-32752, 1, 3, 5, FF7FFFFA, FFEFFFFF** Optional

- **End** Special_Constants
- **End** Array_2D

- **Array_2D_Image - occurs 1 to * times**

  description: **The Array 2D Image class is an extension of the Array 2D class and defines a two dimensional image.**
  role: **Concrete**
  attribute: **axes** value: **2**
  attribute: **axis_index_order** value: **Last Index Fastest**
  attribute: **description** Optional
  attribute: **local_identifier** Optional
  attribute: **name** Optional
  attribute: **offset**

  - **Axis_Array occurs 2 times**

    description: **The Axis Array class is used as a component of the array class and defines an axis of the array.**
    role: **Concrete**
    attribute: **axis_name**
    attribute: **elements**
    attribute: **local_identifier** Optional
    attribute: **sequence_number**
    attribute: **unit** Optional

    - **Band_Bin_Set - occurs 0 to 1 times**

      description: **The Band_Bin_Set class contains the spectral characteristics for all the spectral bands in a qube.**
      role: **Concrete**

      - **Band_Bin - occurs 1 to * times**

        description: **The Band_Bin class specifies the characteristics of an individual spectral band in a spectral qube.**
        role: **Concrete**
        attribute: **band_number**
        attribute: **band_width**
        attribute: **center_wavelength**
        attribute: **detector_number** Optional
        attribute: **filter_number** Optional
        attribute: **grating_position** Optional
        attribute: **original_band** Optional
        attribute: **scaling_factor** Optional
        attribute: **standard_deviation** Optional
        attribute: **value_offset** Optional

      - **End** Band_Bin
    - **End** Band_Bin_Set
  - **End** Axis_Array

  - **Display_2D_Image - occurs 0 to 1 times**

    description: **The Display_2D_Image class provides attributes to enable the display of a 2 dimensional image.**
    role: **Concrete**
    attribute: **line_display_direction** value: **Down, Up**
    attribute: **sample_display_direction** value: **Right**

  - **End** Display_2D_Image

  - **Element_Array occurs 1 times**

    description: **The Element Array class is used as a component of the array class and defines an element of the array.**
    role: **Concrete**
    attribute: **data_type** value: **ComplexLSB16, ComplexLSB8, ComplexMSB16, ComplexMSB8, IEEE754LSBDouble, IEEE754LSBSingle, IEEE754MSBDouble, IEEE754MSBSingle, SignedBitString, SignedByte, SignedLSB2, SignedLSB4, SignedLSB8, SignedMSB2, SignedMSB4, SignedMSB8, UnsignedBitString, UnsignedByte, UnsignedLSB2, UnsignedLSB4, UnsignedLSB8, UnsignedMSB2, UnsignedMSB4, UnsignedMSB8**
    attribute: **scaling_factor** Optional

attribute: **unit** ^{Optional}
attribute: **value_offset** ^{Optional}

- **End** Element_Array

- **Object_Statistics - occurs 0 to 1 times**

  description: **The Object Statistics class provides a set of values that provide metrics about the object.**
  role: **Concrete**
  attribute: **bit_mask** ^{Optional}
  attribute: **description** ^{Optional}
  attribute: **local_identifier** ^{Optional}
  attribute: **maximum** ^{Optional}
  attribute: **maximum_scaled_value** ^{Optional}
  attribute: **md5_checksum** ^{Optional}
  attribute: **mean** ^{Optional}
  attribute: **median** ^{Optional}
  attribute: **minimum** ^{Optional}
  attribute: **minimum_scaled_value** ^{Optional}
  attribute: **standard_deviation** ^{Optional}

- **End** Object_Statistics

- **Special_Constants - occurs 0 to 1 times**

  description: **The Special Constants class provides a set of values used to indicate special cases that occur in the data.**
  role: **Concrete**
  attribute: **error_constant** ^{Optional}
  attribute: **high_instrument_saturation** value: **-32765, 255, 3, 65534, FF7FFFFE, FFFCFFFF** ^{Optional}
  attribute: **high_representation_saturation** value: **-32764, 255, 4, 65535, FF7FFFFF, FFFBFFFF** ^{Optional}
  attribute: **invalid_constant** ^{Optional}
  attribute: **low_instrument_saturation** value: **-32766, 0, 2, FF7FFFFD, FFFDFFFF** ^{Optional}
  attribute: **low_representation_saturation** value: **-32767, 1, 16#FF7FFFFC#, 16#FFFEFFFF#** ^{Optional}
  attribute: **missing_constant** ^{Optional}
  attribute: **not_applicable_constant** ^{Optional}
  attribute: **saturated_constant** ^{Optional}
  attribute: **unknown_constant** ^{Optional}
  attribute: **valid_maximum** value: **254, 32767, 65522** ^{Optional}
  attribute: **valid_minimum** value: **-32752, 1, 3, 5, FF7FFFFA, FFEFFFFF** ^{Optional}

  - **End** Special_Constants
- **End** Array_2D_Image

- **Array_2D_Map - occurs 1 to * times**

  description: **The Array 2D Map class is an extension of the Array 2D class and defines a two dimensional map.**
  role: **Concrete**
  attribute: **axes** value: **2**
  attribute: **axis_index_order** value: **Last Index Fastest**
  attribute: **description** ^{Optional}
  attribute: **local_identifier** ^{Optional}
  attribute: **name** ^{Optional}
  attribute: **offset**

  - **Axis_Array occurs 2 times**

    description: **The Axis Array class is used as a component of the array class and defines an axis of the array.**
    role: **Concrete**
    attribute: **axis_name**
    attribute: **elements**
    attribute: **local_identifier** ^{Optional}
    attribute: **sequence_number**
    attribute: **unit** ^{Optional}

- **Band_Bin_Set - occurs 0 to 1 times**

  description: **The Band_Bin_Set class contains the spectral characteristics for all the spectral bands in a qube.**
  role: **Concrete**

  - **Band_Bin - occurs 1 to * times**

    description: **The Band_Bin class specifies the characteristics of an individual spectral band in a spectral qube.**
    role: **Concrete**
    attribute: **band_number**
    attribute: **band_width**
    attribute: **center_wavelength**
    attribute: **detector_number** Optional
    attribute: **filter_number** Optional
    attribute: **grating_position** Optional
    attribute: **original_band** Optional
    attribute: **scaling_factor** Optional
    attribute: **standard_deviation** Optional
    attribute: **value_offset** Optional

    - **End** Band_Bin
  - **End** Band_Bin_Set
- **End** Axis_Array

- **Display_2D_Image - occurs 0 to 1 times**

  description: **The Display_2D_Image class provides attributes to enable the display of a 2 dimensional image.**
  role: **Concrete**
  attribute: **line_display_direction** value: **Down, Up**
  attribute: **sample_display_direction** value: **Right**

- **End** Display_2D_Image

- **Element_Array occurs 1 times**

  description: **The Element Array class is used as a component of the array class and defines an element of the array.**
  role: **Concrete**
  attribute: **data_type** value: **ComplexLSB16, ComplexLSB8, ComplexMSB16, ComplexMSB8, IEEE754LSBDouble, IEEE754LSBSingle, IEEE754MSBDouble, IEEE754MSBSingle, SignedBitString, SignedByte, SignedLSB2, SignedLSB4, SignedLSB8, SignedMSB2, SignedMSB4, SignedMSB8, UnsignedBitString, UnsignedByte, UnsignedLSB2, UnsignedLSB4, UnsignedLSB8, UnsignedMSB2, UnsignedMSB4, UnsignedMSB8**
  attribute: **scaling_factor** Optional
  attribute: **unit** Optional
  attribute: **value_offset** Optional

- **End** Element_Array

- **Object_Statistics - occurs 0 to 1 times**

  description: **The Object Statistics class provides a set of values that provide metrics about the object.**
  role: **Concrete**
  attribute: **bit_mask** Optional
  attribute: **description** Optional
  attribute: **local_identifier** Optional
  attribute: **maximum** Optional
  attribute: **maximum_scaled_value** Optional
  attribute: **md5_checksum** Optional
  attribute: **mean** Optional
  attribute: **median** Optional
  attribute: **minimum** Optional
  attribute: **minimum_scaled_value** Optional
  attribute: **standard_deviation** Optional

- **End** Object_Statistics

- **Special_Constants - occurs 0 to 1 times**

description: **The Special Constants class provides a set of values used to indicate special cases that occur in the data.**
role: **Concrete**
attribute: **error_constant** Optional
attribute: **high_instrument_saturation** value: **-32765, 255, 3, 65534, FF7FFFFE, FFFCFFFF** Optional
attribute: **high_representation_saturation** value: **-32764, 255, 4, 65535, FF7FFFFF, FFFBFFFF** Optional
attribute: **invalid_constant** Optional
attribute: **low_instrument_saturation** value: **-32766, 0, 2, FF7FFFFD, FFFDFFFF** Optional
attribute: **low_representation_saturation** value: **-32767, 1, 16#FF7FFFFC#, 16#FFFEFFFF#** Optional
attribute: **missing_constant** Optional
attribute: **not_applicable_constant** Optional
attribute: **saturated_constant** Optional
attribute: **unknown_constant** Optional
attribute: **valid_maximum** value: **254, 32767, 65522** Optional
attribute: **valid_minimum** value: **-32752, 1, 3, 5, FF7FFFFA, FFEFFFFF** Optional

- **End** Special_Constants
- **End** Array_2D_Map

- **Array_2D_Spectrum - occurs 1 to * times**

description: **The Array 2D Spectrum class is an extension of the Array 2D class and defines a two dimensional spectrum.**
role: **Concrete**
attribute: **axes** value: **2**
attribute: **axis_index_order** value: **Last Index Fastest**
attribute: **description** Optional
attribute: **local_identifier** Optional
attribute: **name** Optional
attribute: **offset**

  - **Axis_Array occurs 2 times**

  description: **The Axis Array class is used as a component of the array class and defines an axis of the array.**
  role: **Concrete**
  attribute: **axis_name**
  attribute: **elements**
  attribute: **local_identifier** Optional
  attribute: **sequence_number**
  attribute: **unit** Optional

    - **Band_Bin_Set - occurs 0 to 1 times**

    description: **The Band_Bin_Set class contains the spectral characteristics for all the spectral bands in a qube.**
    role: **Concrete**

      - **Band_Bin - occurs 1 to * times**

      description: **The Band_Bin class specifies the characteristics of an individual spectral band in a spectral qube.**
      role: **Concrete**
      attribute: **band_number**
      attribute: **band_width**
      attribute: **center_wavelength**
      attribute: **detector_number** Optional
      attribute: **filter_number** Optional
      attribute: **grating_position** Optional
      attribute: **original_band** Optional
      attribute: **scaling_factor** Optional
      attribute: **standard_deviation** Optional
      attribute: **value_offset** Optional

      - **End** Band_Bin
    - **End** Band_Bin_Set
  - **End** Axis_Array

- **Display_2D_Image - occurs 0 to 1 times**

  description: **The Display_2D_Image class provides attributes to enable the display of a 2 dimensional image.**
  role: **Concrete**
  attribute: **line_display_direction** value: **Down, Up**
  attribute: **sample_display_direction** value: **Right**

- **End** Display_2D_Image

- **Element_Array occurs 1 times**

  description: **The Element Array class is used as a component of the array class and defines an element of the array.**
  role: **Concrete**
  attribute: **data_type** value: **ComplexLSB16, ComplexLSB8, ComplexMSB16, ComplexMSB8, IEEE754LSBDouble, IEEE754LSBSingle, IEEE754MSBDouble, IEEE754MSBSingle, SignedBitString, SignedByte, SignedLSB2, SignedLSB4, SignedLSB8, SignedMSB2, SignedMSB4, SignedMSB8, UnsignedBitString, UnsignedByte, UnsignedLSB2, UnsignedLSB4, UnsignedLSB8, UnsignedMSB2, UnsignedMSB4, UnsignedMSB8**
  attribute: **scaling_factor** Optional
  attribute: **unit** Optional
  attribute: **value_offset** Optional

- **End** Element_Array

- **Object_Statistics - occurs 0 to 1 times**

  description: **The Object Statistics class provides a set of values that provide metrics about the object.**
  role: **Concrete**
  attribute: **bit_mask** Optional
  attribute: **description** Optional
  attribute: **local_identifier** Optional
  attribute: **maximum** Optional
  attribute: **maximum_scaled_value** Optional
  attribute: **md5_checksum** Optional
  attribute: **mean** Optional
  attribute: **median** Optional
  attribute: **minimum** Optional
  attribute: **minimum_scaled_value** Optional
  attribute: **standard_deviation** Optional

- **End** Object_Statistics

- **Special_Constants - occurs 0 to 1 times**

  description: **The Special Constants class provides a set of values used to indicate special cases that occur in the data.**
  role: **Concrete**
  attribute: **error_constant** Optional
  attribute: **high_instrument_saturation** value: **-32765, 255, 3, 65534, FF7FFFFE, FFFCFFFF** Optional

  attribute: **high_representation_saturation** value: **-32764, 255, 4, 65535, FF7FFFFF, FFFBFFFF** Optional

  attribute: **invalid_constant** Optional
  attribute: **low_instrument_saturation** value: **-32766, 0, 2, FF7FFFFD, FFFDFFFF** Optional
  attribute: **low_representation_saturation** value: **-32767, 1, 16#FF7FFFFC#, 16#FFFEFFFF#** Optional

  attribute: **missing_constant** Optional
  attribute: **not_applicable_constant** Optional
  attribute: **saturated_constant** Optional
  attribute: **unknown_constant** Optional
  attribute: **valid_maximum** value: **254, 32767, 65522** Optional
  attribute: **valid_minimum** value: **-32752, 1, 3, 5, FF7FFFFA, FFEFFFFF** Optional

- **End** Special_Constants
- **End** Array_2D_Spectrum

- **Array_3D - occurs 1 to * times**

  description: **The Array 3D class is the parent class for all three dimensional array based classes.**

role: **Concrete**
attribute: **axes** value: **3**
attribute: **axis_index_order** value: **Last Index Fastest**
attribute: **description** ^{Optional}
attribute: **local_identifier** ^{Optional}
attribute: **name** ^{Optional}
attribute: **offset**

- **Axis_Array occurs 3 times**

  description: **The Axis Array class is used as a component of the array class and defines an axis of the array.**
  role: **Concrete**
  attribute: **axis_name**
  attribute: **elements**
  attribute: **local_identifier** ^{Optional}
  attribute: **sequence_number**
  attribute: **unit** ^{Optional}

  - **Band_Bin_Set - occurs 0 to 1 times**

    description: **The Band_Bin_Set class contains the spectral characteristics for all the spectral bands in a qube.**
    role: **Concrete**

    - **Band_Bin - occurs 1 to * times**

      description: **The Band_Bin class specifies the characteristics of an individual spectral band in a spectral qube.**
      role: **Concrete**
      attribute: **band_number**
      attribute: **band_width**
      attribute: **center_wavelength**
      attribute: **detector_number** ^{Optional}
      attribute: **filter_number** ^{Optional}
      attribute: **grating_position** ^{Optional}
      attribute: **original_band** ^{Optional}
      attribute: **scaling_factor** ^{Optional}
      attribute: **standard_deviation** ^{Optional}
      attribute: **value_offset** ^{Optional}

      - **End** Band_Bin
    - **End** Band_Bin_Set
- **End** Axis_Array

- **Element_Array occurs 1 times**

  description: **The Element Array class is used as a component of the array class and defines an element of the array.**
  role: **Concrete**
  attribute: **data_type** value: **ComplexLSB16, ComplexLSB8, ComplexMSB16, ComplexMSB8, IEEE754LSBDouble, IEEE754LSBSingle, IEEE754MSBDouble, IEEE754MSBSingle, SignedBitString, SignedByte, SignedLSB2, SignedLSB4, SignedLSB8, SignedMSB2, SignedMSB4, SignedMSB8, UnsignedBitString, UnsignedByte, UnsignedLSB2, UnsignedLSB4, UnsignedLSB8, UnsignedMSB2, UnsignedMSB4, UnsignedMSB8**
  attribute: **scaling_factor** ^{Optional}
  attribute: **unit** ^{Optional}
  attribute: **value_offset** ^{Optional}

- **End** Element_Array

- **Object_Statistics - occurs 0 to 1 times**

  description: **The Object Statistics class provides a set of values that provide metrics about the object.**
  role: **Concrete**
  attribute: **bit_mask** ^{Optional}
  attribute: **description** ^{Optional}
  attribute: **local_identifier** ^{Optional}
  attribute: **maximum** ^{Optional}
  attribute: **maximum_scaled_value** ^{Optional}
  attribute: **md5_checksum** ^{Optional}

attribute: **mean** Optional
attribute: **median** Optional
attribute: **minimum** Optional
attribute: **minimum_scaled_value** Optional
attribute: **standard_deviation** Optional

- **End** Object_Statistics

- **Special_Constants - occurs 0 to 1 times**

  description: **The Special Constants class provides a set of values used to indicate special cases that occur in the data.**
  role: **Concrete**
  attribute: **error_constant** Optional
  attribute: **high_instrument_saturation** value: **-32765, 255, 3, 65534, FF7FFFFE, FFFCFFFF** Optional

  attribute: **high_representation_saturation** value: **-32764, 255, 4, 65535, FF7FFFFF, FFFBFFFF** Optional

  attribute: **invalid_constant** Optional
  attribute: **low_instrument_saturation** value: **-32766, 0, 2, FF7FFFFD, FFFDFFFF** Optional
  attribute: **low_representation_saturation** value: **-32767, 1, 16#FF7FFFFC#, 16#FFFEFFFF#** Optional

  attribute: **missing_constant** Optional
  attribute: **not_applicable_constant** Optional
  attribute: **saturated_constant** Optional
  attribute: **unknown_constant** Optional
  attribute: **valid_maximum** value: **254, 32767, 65522** Optional
  attribute: **valid_minimum** value: **-32752, 1, 3, 5, FF7FFFFA, FFEFFFFF** Optional

  - **End** Special_Constants
- **End** Array_3D

- **Array_3D_Image - occurs 1 to * times**

  description: **The Array 3D Image class is an extension of the Array 3D class and defines a three dimensional image.**
  role: **Concrete**
  attribute: **axes** value: **3**
  attribute: **axis_index_order** value: **Last Index Fastest**
  attribute: **description** Optional
  attribute: **local_identifier** Optional
  attribute: **name** Optional
  attribute: **offset**

  - **Axis_Array occurs 3 times**

    description: **The Axis Array class is used as a component of the array class and defines an axis of the array.**
    role: **Concrete**
    attribute: **axis_name**
    attribute: **elements**
    attribute: **local_identifier** Optional
    attribute: **sequence_number**
    attribute: **unit** Optional

    - **Band_Bin_Set - occurs 0 to 1 times**

      description: **The Band_Bin_Set class contains the spectral characteristics for all the spectral bands in a qube.**
      role: **Concrete**

      - **Band_Bin - occurs 1 to * times**

        description: **The Band_Bin class specifies the characteristics of an individual spectral band in a spectral qube.**
        role: **Concrete**
        attribute: **band_number**
        attribute: **band_width**
        attribute: **center_wavelength**
        attribute: **detector_number** Optional
        attribute: **filter_number** Optional

- attribute: **grating_position** ^{Optional}
- attribute: **original_band** ^{Optional}
- attribute: **scaling_factor** ^{Optional}
- attribute: **standard_deviation** ^{Optional}
- attribute: **value_offset** ^{Optional}

- **End** Band_Bin
- **End** Band_Bin_Set
- **End** Axis_Array

- **Element_Array occurs 1 times**

  description: **The Element Array class is used as a component of the array class and defines an element of the array.**
  role: **Concrete**
  attribute: **data_type** value: **ComplexLSB16, ComplexLSB8, ComplexMSB16, ComplexMSB8, IEEE754LSBDouble, IEEE754LSBSingle, IEEE754MSBDouble, IEEE754MSBSingle, SignedBitString, SignedByte, SignedLSB2, SignedLSB4, SignedLSB8, SignedMSB2, SignedMSB4, SignedMSB8, UnsignedBitString, UnsignedByte, UnsignedLSB2, UnsignedLSB4, UnsignedLSB8, UnsignedMSB2, UnsignedMSB4, UnsignedMSB8**
  attribute: **scaling_factor** ^{Optional}
  attribute: **unit** ^{Optional}
  attribute: **value_offset** ^{Optional}

- **End** Element_Array

- **Object_Statistics - occurs 0 to 1 times**

  description: **The Object Statistics class provides a set of values that provide metrics about the object.**
  role: **Concrete**
  attribute: **bit_mask** ^{Optional}
  attribute: **description** ^{Optional}
  attribute: **local_identifier** ^{Optional}
  attribute: **maximum** ^{Optional}
  attribute: **maximum_scaled_value** ^{Optional}
  attribute: **md5_checksum** ^{Optional}
  attribute: **mean** ^{Optional}
  attribute: **median** ^{Optional}
  attribute: **minimum** ^{Optional}
  attribute: **minimum_scaled_value** ^{Optional}
  attribute: **standard_deviation** ^{Optional}

- **End** Object_Statistics

- **Special_Constants - occurs 0 to 1 times**

  description: **The Special Constants class provides a set of values used to indicate special cases that occur in the data.**
  role: **Concrete**
  attribute: **error_constant** ^{Optional}
  attribute: **high_instrument_saturation** value: **-32765, 255, 3, 65534, FF7FFFFE, FFFCFFFF** ^{Optional}
  attribute: **high_representation_saturation** value: **-32764, 255, 4, 65535, FF7FFFFF, FFFBFFFF** ^{Optional}
  attribute: **invalid_constant** ^{Optional}
  attribute: **low_instrument_saturation** value: **-32766, 0, 2, FF7FFFFD, FFFDFFFF** ^{Optional}
  attribute: **low_representation_saturation** value: **-32767, 1, 16#FF7FFFFC#, 16#FFFEFFFF#** ^{Optional}
  attribute: **missing_constant** ^{Optional}
  attribute: **not_applicable_constant** ^{Optional}
  attribute: **saturated_constant** ^{Optional}
  attribute: **unknown_constant** ^{Optional}
  attribute: **valid_maximum** value: **254, 32767, 65522** ^{Optional}
  attribute: **valid_minimum** value: **-32752, 1, 3, 5, FF7FFFFA, FFEFFFFF** ^{Optional}

- **End** Special_Constants
- **End** Array_3D_Image

- **Array_3D_Movie - occurs 1 to * times**

description: **The Array 3D Movie class is an extension of the Array 3D class and defines a movie as a set of two dimensional images in a time series.**
role: **Concrete**
attribute: **axes** value: **3**
attribute: **axis_index_order** value: **Last Index Fastest**
attribute: **description** ^{Optional}
attribute: **local_identifier** ^{Optional}
attribute: **name** ^{Optional}
attribute: **offset**

- **Axis_Array occurs 3 times**

  description: **The Axis Array class is used as a component of the array class and defines an axis of the array.**
  role: **Concrete**
  attribute: **axis_name**
  attribute: **elements**
  attribute: **local_identifier** ^{Optional}
  attribute: **sequence_number**
  attribute: **unit** ^{Optional}

  - **Band_Bin_Set - occurs 0 to 1 times**

    description: **The Band_Bin_Set class contains the spectral characteristics for all the spectral bands in a qube.**
    role: **Concrete**

    - **Band_Bin - occurs 1 to * times**

      description: **The Band_Bin class specifies the characteristics of an individual spectral band in a spectral qube.**
      role: **Concrete**
      attribute: **band_number**
      attribute: **band_width**
      attribute: **center_wavelength**
      attribute: **detector_number** ^{Optional}
      attribute: **filter_number** ^{Optional}
      attribute: **grating_position** ^{Optional}
      attribute: **original_band** ^{Optional}
      attribute: **scaling_factor** ^{Optional}
      attribute: **standard_deviation** ^{Optional}
      attribute: **value_offset** ^{Optional}

      - **End** Band_Bin
    - **End** Band_Bin_Set
- **End** Axis_Array

- **Element_Array occurs 1 times**

  description: **The Element Array class is used as a component of the array class and defines an element of the array.**
  role: **Concrete**
  attribute: **data_type** value: **ComplexLSB16, ComplexLSB8, ComplexMSB16, ComplexMSB8, IEEE754LSBDouble, IEEE754LSBSingle, IEEE754MSBDouble, IEEE754MSBSingle, SignedBitString, SignedByte, SignedLSB2, SignedLSB4, SignedLSB8, SignedMSB2, SignedMSB4, SignedMSB8, UnsignedBitString, UnsignedByte, UnsignedLSB2, UnsignedLSB4, UnsignedLSB8, UnsignedMSB2, UnsignedMSB4, UnsignedMSB8**
  attribute: **scaling_factor** ^{Optional}
  attribute: **unit** ^{Optional}
  attribute: **value_offset** ^{Optional}

- **End** Element_Array

- **Object_Statistics - occurs 0 to 1 times**

  description: **The Object Statistics class provides a set of values that provide metrics about the object.**
  role: **Concrete**
  attribute: **bit_mask** ^{Optional}
  attribute: **description** ^{Optional}
  attribute: **local_identifier** ^{Optional}
  attribute: **maximum** ^{Optional}

attribute: **maximum_scaled_value** ^{Optional}

attribute: **md5_checksum** ^{Optional}

attribute: **mean** ^{Optional}

attribute: **median** ^{Optional}

attribute: **minimum** ^{Optional}

attribute: **minimum_scaled_value** ^{Optional}

attribute: **standard_deviation** ^{Optional}

- **End** Object_Statistics

- **Special_Constants - occurs 0 to 1 times**

  description: **The Special Constants class provides a set of values used to indicate special cases that occur in the data.**
  role: **Concrete**
  attribute: **error_constant** ^{Optional}
  attribute: **high_instrument_saturation** value: **-32765, 255, 3, 65534, FF7FFFFE, FFFCFFFF** ^{Optional}

  attribute: **high_representation_saturation** value: **-32764, 255, 4, 65535, FF7FFFFF, FFFBFFFF** ^{Optional}

  attribute: **invalid_constant** ^{Optional}
  attribute: **low_instrument_saturation** value: **-32766, 0, 2, FF7FFFFD, FFFDFFFF** ^{Optional}
  attribute: **low_representation_saturation** value: **-32767, 1, 16#FF7FFFFC#, 16#FFFEFFFF#** ^{Optional}

  attribute: **missing_constant** ^{Optional}
  attribute: **not_applicable_constant** ^{Optional}
  attribute: **saturated_constant** ^{Optional}
  attribute: **unknown_constant** ^{Optional}
  attribute: **valid_maximum** value: **254, 32767, 65522** ^{Optional}
  attribute: **valid_minimum** value: **-32752, 1, 3, 5, FF7FFFFA, FFEFFFFF** ^{Optional}

  - **End** Special_Constants
- **End** Array_3D_Movie

- **Array_3D_Spectrum - occurs 1 to * times**

  description: **The Array 3D Spectrum class is an extension of the Array 3D class and defines a three dimensional spectrum.**
  role: **Concrete**
  attribute: **axes** value: **3**
  attribute: **axis_index_order** value: **Last Index Fastest**
  attribute: **description** ^{Optional}
  attribute: **local_identifier** ^{Optional}
  attribute: **name** ^{Optional}
  attribute: **offset**

  - **Axis_Array occurs 3 times**

    description: **The Axis Array class is used as a component of the array class and defines an axis of the array.**
    role: **Concrete**
    attribute: **axis_name**
    attribute: **elements**
    attribute: **local_identifier** ^{Optional}
    attribute: **sequence_number**
    attribute: **unit** ^{Optional}

    - **Band_Bin_Set - occurs 0 to 1 times**

      description: **The Band_Bin_Set class contains the spectral characteristics for all the spectral bands in a qube.**
      role: **Concrete**

      - **Band_Bin - occurs 1 to * times**

        description: **The Band_Bin class specifies the characteristics of an individual spectral band in a spectral qube.**
        role: **Concrete**
        attribute: **band_number**
        attribute: **band_width**
        attribute: **center_wavelength**

        attribute: **detector_number** ^{Optional}
        attribute: **filter_number** ^{Optional}
        attribute: **grating_position** ^{Optional}
        attribute: **original_band** ^{Optional}
        attribute: **scaling_factor** ^{Optional}
        attribute: **standard_deviation** ^{Optional}
        attribute: **value_offset** ^{Optional}

- **End** Band_Bin
- **End** Band_Bin_Set

- **End** Axis_Array

- **Element_Array occurs 1 times**

  description: **The Element Array class is used as a component of the array class and defines an element of the array.**
  role: **Concrete**
  attribute: **data_type** value: **ComplexLSB16, ComplexLSB8, ComplexMSB16, ComplexMSB8, IEEE754LSBDouble, IEEE754LSBSingle, IEEE754MSBDouble, IEEE754MSBSingle, SignedBitString, SignedByte, SignedLSB2, SignedLSB4, SignedLSB8, SignedMSB2, SignedMSB4, SignedMSB8, UnsignedBitString, UnsignedByte, UnsignedLSB2, UnsignedLSB4, UnsignedLSB8, UnsignedMSB2, UnsignedMSB4, UnsignedMSB8**
  attribute: **scaling_factor** ^{Optional}
  attribute: **unit** ^{Optional}
  attribute: **value_offset** ^{Optional}

- **End** Element_Array

- **Object_Statistics - occurs 0 to 1 times**

  description: **The Object Statistics class provides a set of values that provide metrics about the object.**
  role: **Concrete**
  attribute: **bit_mask** ^{Optional}
  attribute: **description** ^{Optional}
  attribute: **local_identifier** ^{Optional}
  attribute: **maximum** ^{Optional}
  attribute: **maximum_scaled_value** ^{Optional}
  attribute: **md5_checksum** ^{Optional}
  attribute: **mean** ^{Optional}
  attribute: **median** ^{Optional}
  attribute: **minimum** ^{Optional}
  attribute: **minimum_scaled_value** ^{Optional}
  attribute: **standard_deviation** ^{Optional}

- **End** Object_Statistics

- **Special_Constants - occurs 0 to 1 times**

  description: **The Special Constants class provides a set of values used to indicate special cases that occur in the data.**
  role: **Concrete**
  attribute: **error_constant** ^{Optional}
  attribute: **high_instrument_saturation** value: **-32765, 255, 3, 65534, FF7FFFFE, FFFCFFFF** ^{Optional}
  attribute: **high_representation_saturation** value: **-32764, 255, 4, 65535, FF7FFFFF, FFFBFFFF** ^{Optional}
  attribute: **invalid_constant** ^{Optional}
  attribute: **low_instrument_saturation** value: **-32766, 0, 2, FF7FFFFD, FFFDFFFF** ^{Optional}
  attribute: **low_representation_saturation** value: **-32767, 1, 16#FF7FFFFC#, 16#FFFEFFFF#** ^{Optional}
  attribute: **missing_constant** ^{Optional}
  attribute: **not_applicable_constant** ^{Optional}
  attribute: **saturated_constant** ^{Optional}
  attribute: **unknown_constant** ^{Optional}
  attribute: **valid_maximum** value: **254, 32767, 65522** ^{Optional}
  attribute: **valid_minimum** value: **-32752, 1, 3, 5, FF7FFFFA, FFEFFFFF** ^{Optional}

- **End** Special_Constants
- **End** Array_3D_Spectrum

- **Encoded_Header - occurs 1 to * times**

  description: **The Encoded Header class describes a header that has been encoded using an encoding scheme that is compliant to an external standard.**
  role: **Concrete**
  attribute: **description** ^{Optional}
  attribute: **encoding_standard_id** value: **TIFF**
  attribute: **local_identifier** ^{Optional}
  attribute: **name** ^{Optional}
  attribute: **object_length** ^{Optional}
  attribute: **offset**

- **End** Encoded_Header

- **File occurs 1 times**

  description: **The File class consists of attributes that describe a file in a data store.**
  role: **Concrete**
  attribute: **comment** ^{Optional}
  attribute: **creation_date_time** ^{Optional}
  attribute: **file_name**
  attribute: **file_size** ^{Optional}
  attribute: **local_identifier** ^{Optional}
  attribute: **md5_checksum** ^{Optional}
  attribute: **records** ^{Optional}

- **End** File

- **Header - occurs 1 to * times**

  description: **The Header class describes a data object header.**
  role: **Concrete**
  attribute: **description** ^{Optional}
  attribute: **local_identifier** ^{Optional}
  attribute: **name** ^{Optional}
  attribute: **object_length**
  attribute: **offset**
  attribute: **parsing_standard_id** value: **7-Bit ASCII Text, CDF 3.4 ISTP/IACG, FITS 3.0, ISIS2, ISIS3, PDS DSV 1, PDS ODL 2, PDS3, Pre-PDS3, UTF-8 Text, VICAR1, VICAR2**

- **End** Header

- **Stream_Text - occurs 1 to * times**

  description: **The Stream text class defines a text object.**
  role: **Concrete**
  attribute: **description** ^{Optional}
  attribute: **local_identifier** ^{Optional}
  attribute: **name** ^{Optional}
  attribute: **object_length** ^{Optional}
  attribute: **offset**
  attribute: **parsing_standard_id**
  attribute: **record_delimiter** value: **carriage-return line-feed**

- **End** Stream_Text

- **Table_Binary - occurs 1 to * times**

  description: **The Table Binary class is an extension of table base and defines a simple binary table.**
  role: **Concrete**
  attribute: **description** ^{Optional}
  attribute: **local_identifier** ^{Optional}
  attribute: **name** ^{Optional}
  attribute: **offset**
  attribute: **record_delimiter** ^{Optional}
  attribute: **records**

  - **Record_Binary occurs 1 times**

    description: **The Record_Binary class is a component of the table class and defines a record of the table.**
    role: **Concrete**

attribute: **fields**
attribute: **groups**
attribute: **record_length**

- **Field_Binary - occurs 1 to * times**

  description: **The Field_Binary class defines a field of a binary record or a field of a binary group.**
  role: **Concrete**
  attribute: **data_type** value: **ASCII_AnyURI, ASCII_Boolean, ASCII_DOI, ASCII_Date, ASCII_Date_DOY, ASCII_Date_Time, ASCII_Date_Time_DOY, ASCII_Date_Time_UTC, ASCII_Date_Time_YMD, ASCII_Date_YMD, ASCII_Directory_Path_Name, ASCII_File_Name, ASCII_File_Specification_Name, ASCII_Integer, ASCII_LID, ASCII_LIDVID, ASCII_LIDVID_LID, ASCII_MD5_Checksum, ASCII_NonNegative_Integer, ASCII_Numeric_Base16, ASCII_Numeric_Base2, ASCII_Numeric_Base8, ASCII_Real, ASCII_String, ASCII_Time, ASCII_VID, ComplexLSB16, ComplexLSB8, ComplexMSB16, ComplexMSB8, IEEE754LSBDouble, IEEE754LSBSingle, IEEE754MSBDouble, IEEE754MSBSingle, SignedBitString, SignedByte, SignedLSB2, SignedLSB4, SignedLSB8, SignedMSB2, SignedMSB4, SignedMSB8, UTF8_String, UnsignedBitString, UnsignedByte, UnsignedLSB2, UnsignedLSB4, UnsignedLSB8, UnsignedMSB2, UnsignedMSB4, UnsignedMSB8**
  attribute: **description** Optional
  attribute: **field_format** Optional
  attribute: **field_length**
  attribute: **field_location**
  attribute: **field_number** Optional
  attribute: **name**
  attribute: **scaling_factor** Optional
  attribute: **unit** Optional
  attribute: **value_offset** Optional

  - **Field_Statistics - occurs 0 to 1 times**

    description: **The Field Statistics class provides a set of metrics for a column formed by a field in a repeating record.**
    role: **Concrete**
    attribute: **description** Optional
    attribute: **local_identifier** Optional
    attribute: **maximum** Optional
    attribute: **mean** Optional
    attribute: **median** Optional
    attribute: **minimum** Optional
    attribute: **standard_deviation** Optional

  - **End** Field_Statistics

  - **Packed_Data_Fields - occurs 0 to 1 times**

    description: **The Packed_Data_Fields class contains field definitions for extracting packed data from the associated byte string field.**
    role: **Concrete**
    attribute: **bit_fields**
    attribute: **description** Optional

    - **Field_Bit - occurs 1 to * times**

      description: **The Field_Bit class provides parameters for extracting one field out of a string of bytes which contains packed data (that is, data values either smaller than a single byte, or crossing byte boundaries, or both.**
      role: **Concrete**
      attribute: **data_type** value: **SignedBitString, UnsignedBitString**
      attribute: **description** Optional
      attribute: **field_format** Optional
      attribute: **field_number** Optional
      attribute: **name**
      attribute: **scaling_factor** Optional
      attribute: **start_bit**
      attribute: **stop_bit**
      attribute: **unit** Optional
      attribute: **value_offset** Optional

- **Special_Constants - occurs 0 to 1 times**

  description: **The Special Constants class provides a set of values used to indicate special cases that occur in the data.**
  role: **Concrete**
  attribute: **error_constant** Optional
  attribute: **high_instrument_saturation** value: **-32765, 255, 3, 65534, FF7FFFFE, FFFCFFFF** Optional
  attribute: **high_representation_saturation** value: **-32764, 255, 4, 65535, FF7FFFFF, FFFBFFFF** Optional
  attribute: **invalid_constant** Optional
  attribute: **low_instrument_saturation** value: **-32766, 0, 2, FF7FFFFD, FFFDFFFF** Optional
  attribute: **low_representation_saturation** value: **-32767, 1, 16#FF7FFFFC#, 16#FFFEFFFF#** Optional
  attribute: **missing_constant** Optional
  attribute: **not_applicable_constant** Optional
  attribute: **saturated_constant** Optional
  attribute: **unknown_constant** Optional
  attribute: **valid_maximum** value: **254, 32767, 65522** Optional
  attribute: **valid_minimum** value: **-32752, 1, 3, 5, FF7FFFFA, FFEFFFFF** Optional

    - **End** Special_Constants
  - **End** Field_Bit
- **End** Packed_Data_Fields

- **Special_Constants - occurs 0 to 1 times**

  description: **The Special Constants class provides a set of values used to indicate special cases that occur in the data.**
  role: **Concrete**
  attribute: **error_constant** Optional
  attribute: **high_instrument_saturation** value: **-32765, 255, 3, 65534, FF7FFFFE, FFFCFFFF** Optional
  attribute: **high_representation_saturation** value: **-32764, 255, 4, 65535, FF7FFFFF, FFFBFFFF** Optional
  attribute: **invalid_constant** Optional
  attribute: **low_instrument_saturation** value: **-32766, 0, 2, FF7FFFFD, FFFDFFFF** Optional
  attribute: **low_representation_saturation** value: **-32767, 1, 16#FF7FFFFC#, 16#FFFEFFFF#** Optional
  attribute: **missing_constant** Optional
  attribute: **not_applicable_constant** Optional
  attribute: **saturated_constant** Optional
  attribute: **unknown_constant** Optional
  attribute: **valid_maximum** value: **254, 32767, 65522** Optional
  attribute: **valid_minimum** value: **-32752, 1, 3, 5, FF7FFFFA, FFEFFFFF** Optional

  - **End** Special_Constants
- **End** Field_Binary

- **Group_Field_Binary - occurs 1 to * times**

  description: **The Group_Field_Binary class allows a group of table fields.**
  role: **Concrete**
  attribute: **fields**
  attribute: **group_length**
  attribute: **group_location**
  attribute: **group_number** Optional
  attribute: **groups**
  attribute: **repetitions**

  - **Field_Binary - occurs 1 to * times**

    description: **The Field_Binary class defines a field of a binary record or a field of a binary group.**
    role: **Concrete**
    attribute: **data_type** value: **ASCII_AnyURI, ASCII_Boolean, ASCII_DOI, ASCII_Date, ASCII_Date_DOY, ASCII_Date_Time, ASCII_Date_Time_DOY, ASCII_Date_Time_UTC, ASCII_Date_Time_YMD, ASCII_Date_YMD, ASCII_Directory_Path_Name, ASCII_File_Name,**

ASCII_File_Specification_Name, ASCII_Integer, ASCII_LID, ASCII_LIDVID, ASCII_LIDVID_LID, ASCII_MD5_Checksum, ASCII_NonNegative_Integer, ASCII_Numeric_Base16, ASCII_Numeric_Base2, ASCII_Numeric_Base8, ASCII_Real, ASCII_String, ASCII_Time, ASCII_VID, ComplexLSB16, ComplexLSB8, ComplexMSB16, ComplexMSB8, IEEE754LSBDouble, IEEE754LSBSingle, IEEE754MSBDouble, IEEE754MSBSingle, SignedBitString, SignedByte, SignedLSB2, SignedLSB4, SignedLSB8, SignedMSB2, SignedMSB4, SignedMSB8, UTF8_String, UnsignedBitString, UnsignedByte, UnsignedLSB2, UnsignedLSB4, UnsignedLSB8, UnsignedMSB2, UnsignedMSB4, UnsignedMSB8

attribute: **description** Optional
attribute: **field_format** Optional
attribute: **field_length**
attribute: **field_location**
attribute: **field_number** Optional
attribute: **name**
attribute: **scaling_factor** Optional
attribute: **unit** Optional
attribute: **value_offset** Optional

- **Field_Statistics - occurs 0 to 1 times**

  description: **The Field Statistics class provides a set of metrics for a column formed by a field in a repeating record.**
  role: **Concrete**
  attribute: **description** Optional
  attribute: **local_identifier** Optional
  attribute: **maximum** Optional
  attribute: **mean** Optional
  attribute: **median** Optional
  attribute: **minimum** Optional
  attribute: **standard_deviation** Optional

- **End** Field_Statistics

- **Packed_Data_Fields - occurs 0 to 1 times**

  description: **The Packed_Data_Fields class contains field definitions for extracting packed data from the associated byte string field.**
  role: **Concrete**
  attribute: **bit_fields**
  attribute: **description** Optional

  - **Field_Bit - occurs 1 to * times**

    description: **The Field_Bit class provides parameters for extracting one field out of a string of bytes which contains packed data (that is, data values either smaller than a single byte, or crossing byte boundaries, or both.**
    role: **Concrete**
    attribute: **data_type** value: **SignedBitString, UnsignedBitString**
    attribute: **description** Optional
    attribute: **field_format** Optional
    attribute: **field_number** Optional
    attribute: **name**
    attribute: **scaling_factor** Optional
    attribute: **start_bit**
    attribute: **stop_bit**
    attribute: **unit** Optional
    attribute: **value_offset** Optional

    - **Special_Constants - occurs 0 to 1 times**

      description: **The Special Constants class provides a set of values used to indicate special cases that occur in the data.**
      role: **Concrete**
      attribute: **error_constant** Optional
      attribute: **high_instrument_saturation** value: **-32765, 255, 3, 65534, FF7FFFFE, FFFCFFFF** Optional
      attribute: **high_representation_saturation** value:

-32764, 255, 4, 65535, FF7FFFFF, FFFBFFFF ^{Optional}

attribute: **invalid_constant** ^{Optional}

attribute: **low_instrument_saturation** value: **-32766, 0, 2, FF7FFFFD, FFFDFFFF** ^{Optional}

attribute: **low_representation_saturation** value: **-32767, 1, 16#FF7FFFFC#, 16#FFFEFFFF#** ^{Optional}

attribute: **missing_constant** ^{Optional}

attribute: **not_applicable_constant** ^{Optional}

attribute: **saturated_constant** ^{Optional}

attribute: **unknown_constant** ^{Optional}

attribute: **valid_maximum** value: **254, 32767, 65522** ^{Optional}

attribute: **valid_minimum** value: **-32752, 1, 3, 5, FF7FFFFA, FFEFFFFF** ^{Optional}

- **End** Special_Constants
  - **End** Field_Bit
- **End** Packed_Data_Fields

- **Special_Constants - occurs 0 to 1 times**

  description: **The Special Constants class provides a set of values used to indicate special cases that occur in the data.**
  role: **Concrete**
  attribute: **error_constant** ^{Optional}
  attribute: **high_instrument_saturation** value: **-32765, 255, 3, 65534, FF7FFFFE, FFFCFFFF** ^{Optional}
  attribute: **high_representation_saturation** value: **-32764, 255, 4, 65535, FF7FFFFF, FFFBFFFF** ^{Optional}
  attribute: **invalid_constant** ^{Optional}
  attribute: **low_instrument_saturation** value: **-32766, 0, 2, FF7FFFFD, FFFDFFFF** ^{Optional}
  attribute: **low_representation_saturation** value: **-32767, 1, 16#FF7FFFFC#, 16#FFFEFFFF#** ^{Optional}
  attribute: **missing_constant** ^{Optional}
  attribute: **not_applicable_constant** ^{Optional}
  attribute: **saturated_constant** ^{Optional}
  attribute: **unknown_constant** ^{Optional}
  attribute: **valid_maximum** value: **254, 32767, 65522** ^{Optional}
  attribute: **valid_minimum** value: **-32752, 1, 3, 5, FF7FFFFA, FFEFFFFF** ^{Optional}

  - **End** Special_Constants
    - **End** Field_Binary
    - **End** Group_Field_Binary
- **End** Record_Binary

- **Uniformly_Sampled - occurs 0 to 1 times**

  description: **The Uniformly_Sampled class provides parameters for a uniformly sampled table.**
  role: **Concrete**
  attribute: **first_sampling_parameter_value**
  attribute: **last_sampling_parameter_value**
  attribute: **sampling_parameter_interval**
  attribute: **sampling_parameter_name**
  attribute: **sampling_parameter_scale** value: **Exponential, Linear, Logarithmic** ^{Optional}
  attribute: **sampling_parameter_unit**

  - **End** Uniformly_Sampled
- **End** Table_Binary

- **Table_Character - occurs 1 to * times**

  description: **The Table Character class is an extension of table base and defines a simple character table.**
  role: **Concrete**
  attribute: **description** ^{Optional}
  attribute: **local_identifier** ^{Optional}
  attribute: **name** ^{Optional}

attribute: **offset**
attribute: **record_delimiter** value: **carriage-return line-feed**
attribute: **records**

- **Record_Character occurs 1 times**

  description: **The Record_Character class is a component of the table class and defines a record of the table.**
  role: **Concrete**
  attribute: **fields**
  attribute: **groups**
  attribute: **record_length**

  - **Field_Character - occurs 1 to * times**

    description: **The Field_Character class defines a field of a character record or a field of a character group.**
    role: **Concrete**
    attribute: **data_type** value: **ASCII_AnyURI, ASCII_Boolean, ASCII_DOI, ASCII_Date, ASCII_Date_DOY, ASCII_Date_Time, ASCII_Date_Time_DOY, ASCII_Date_Time_UTC, ASCII_Date_Time_YMD, ASCII_Date_YMD, ASCII_Directory_Path_Name, ASCII_File_Name, ASCII_File_Specification_Name, ASCII_Integer, ASCII_LID, ASCII_LIDVID, ASCII_LIDVID_LID, ASCII_MD5_Checksum, ASCII_NonNegative_Integer, ASCII_Numeric_Base16, ASCII_Numeric_Base2, ASCII_Numeric_Base8, ASCII_Real, ASCII_String, ASCII_Time, ASCII_VID, UTF8_String**
    attribute: **description** Optional
    attribute: **field_format** Optional
    attribute: **field_length**
    attribute: **field_location**
    attribute: **field_number** Optional
    attribute: **name**
    attribute: **scaling_factor** Optional
    attribute: **unit** Optional
    attribute: **value_offset** Optional

    - **Field_Statistics - occurs 0 to 1 times**

      description: **The Field Statistics class provides a set of metrics for a column formed by a field in a repeating record.**
      role: **Concrete**
      attribute: **description** Optional
      attribute: **local_identifier** Optional
      attribute: **maximum** Optional
      attribute: **mean** Optional
      attribute: **median** Optional
      attribute: **minimum** Optional
      attribute: **standard_deviation** Optional

  - **End** Field_Statistics

  - **Special_Constants - occurs 0 to 1 times**

    description: **The Special Constants class provides a set of values used to indicate special cases that occur in the data.**
    role: **Concrete**
    attribute: **error_constant** Optional
    attribute: **high_instrument_saturation** value: **-32765, 255, 3, 65534, FF7FFFFE, FFFCFFFF** Optional
    attribute: **high_representation_saturation** value: **-32764, 255, 4, 65535, FF7FFFFF, FFFBFFFF** Optional
    attribute: **invalid_constant** Optional
    attribute: **low_instrument_saturation** value: **-32766, 0, 2, FF7FFFFD, FFFDFFFF** Optional
    attribute: **low_representation_saturation** value: **-32767, 1, 16#FF7FFFFC#, 16#FFFEFFFF#** Optional
    attribute: **missing_constant** Optional
    attribute: **not_applicable_constant** Optional
    attribute: **saturated_constant** Optional
    attribute: **unknown_constant** Optional
    attribute: **valid_maximum** value: **254, 32767, 65522** Optional
    attribute: **valid_minimum** value: **-32752, 1, 3, 5, FF7FFFFA, FFEFFFFF** Optional

- **End** Special_Constants
- **End** Field_Character

- **Group_Field_Character - occurs 1 to * times**

  description: **The Group_Field_Character class allows a group of table fields.**
  role: **Concrete**
  attribute: **fields**
  attribute: **group_length**
  attribute: **group_location**
  attribute: **group_number** ^{Optional}
  attribute: **groups**
  attribute: **repetitions**

  - **Field_Character - occurs 1 to * times**

    description: **The Field_Character class defines a field of a character record or a field of a character group.**
    role: **Concrete**
    attribute: **data_type** value: **ASCII_AnyURI, ASCII_Boolean, ASCII_DOI, ASCII_Date, ASCII_Date_DOY, ASCII_Date_Time, ASCII_Date_Time_DOY, ASCII_Date_Time_UTC, ASCII_Date_Time_YMD, ASCII_Date_YMD, ASCII_Directory_Path_Name, ASCII_File_Name, ASCII_File_Specification_Name, ASCII_Integer, ASCII_LID, ASCII_LIDVID, ASCII_LIDVID_LID, ASCII_MD5_Checksum, ASCII_NonNegative_Integer, ASCII_Numeric_Base16, ASCII_Numeric_Base2, ASCII_Numeric_Base8, ASCII_Real, ASCII_String, ASCII_Time, ASCII_VID, UTF8_String**
    attribute: **description** ^{Optional}
    attribute: **field_format** ^{Optional}
    attribute: **field_length**
    attribute: **field_location**
    attribute: **field_number** ^{Optional}
    attribute: **name**
    attribute: **scaling_factor** ^{Optional}
    attribute: **unit** ^{Optional}
    attribute: **value_offset** ^{Optional}

    - **Field_Statistics - occurs 0 to 1 times**

      description: **The Field Statistics class provides a set of metrics for a column formed by a field in a repeating record.**
      role: **Concrete**
      attribute: **description** ^{Optional}
      attribute: **local_identifier** ^{Optional}
      attribute: **maximum** ^{Optional}
      attribute: **mean** ^{Optional}
      attribute: **median** ^{Optional}
      attribute: **minimum** ^{Optional}
      attribute: **standard_deviation** ^{Optional}

    - **End** Field_Statistics

    - **Special_Constants - occurs 0 to 1 times**

      description: **The Special Constants class provides a set of values used to indicate special cases that occur in the data.**
      role: **Concrete**
      attribute: **error_constant** ^{Optional}
      attribute: **high_instrument_saturation** value: **-32765, 255, 3, 65534, FF7FFFFE, FFFCFFFF** ^{Optional}
      attribute: **high_representation_saturation** value: **-32764, 255, 4, 65535, FF7FFFFF, FFFBFFFF** ^{Optional}
      attribute: **invalid_constant** ^{Optional}
      attribute: **low_instrument_saturation** value: **-32766, 0, 2, FF7FFFFD, FFFDFFFF** ^{Optional}
      attribute: **low_representation_saturation** value: **-32767, 1, 16#FF7FFFFC#, 16#FFFEFFFF#** ^{Optional}
      attribute: **missing_constant** ^{Optional}
      attribute: **not_applicable_constant** ^{Optional}
      attribute: **saturated_constant** ^{Optional}
      attribute: **unknown_constant** ^{Optional}

attribute: **valid_maximum** value: **254, 32767, 65522** ^{Optional}
attribute: **valid_minimum** value: **-32752, 1, 3, 5, FF7FFFFA, FFEFFFFF** Optional

- **End** Special_Constants
- **End** Field_Character
- **End** Group_Field_Character
- **End** Record_Character

- **Uniformly_Sampled - occurs 0 to 1 times**

  description: **The Uniformly_Sampled class provides parameters for a uniformly sampled table.**
  role: **Concrete**
  attribute: **first_sampling_parameter_value**
  attribute: **last_sampling_parameter_value**
  attribute: **sampling_parameter_interval**
  attribute: **sampling_parameter_name**
  attribute: **sampling_parameter_scale** value: **Exponential, Linear, Logarithmic** ^{Optional}
  attribute: **sampling_parameter_unit**

  - **End** Uniformly_Sampled
- **End** Table_Character

- **Table_Delimited - occurs 1 to * times**

  description: **The Table_Delimited class defines a simple table (spreadsheet) with delimited fields and records.**
  role: **Concrete**
  attribute: **description** ^{Optional}
  attribute: **field_delimiter** value: **comma, horizontal tab, semicolon, vertical bar**
  attribute: **local_identifier** ^{Optional}
  attribute: **name** ^{Optional}
  attribute: **object_length** ^{Optional}
  attribute: **offset**
  attribute: **parsing_standard_id** value: **PDS DSV 1**
  attribute: **record_delimiter** value: **carriage-return line-feed**
  attribute: **records**

  - **Record_Delimited occurs 1 times**

    description: **The Record_Delimited class is a component of the delimited table (spreadsheet) class and defines a record of the delimited table.**
    role: **Concrete**
    attribute: **fields**
    attribute: **groups**
    attribute: **maximum_record_length** ^{Optional}

    - **Field_Delimited - occurs 1 to * times**

      description: **The Field_Delimited class defines a field of a delimited record or a field of a delimited group.**
      role: **Concrete**
      attribute: **data_type** value: **ASCII_AnyURI, ASCII_Boolean, ASCII_DOI, ASCII_Date, ASCII_Date_DOY, ASCII_Date_Time, ASCII_Date_Time_DOY, ASCII_Date_Time_UTC, ASCII_Date_Time_YMD, ASCII_Date_YMD, ASCII_Directory_Path_Name, ASCII_File_Name, ASCII_File_Specification_Name, ASCII_Integer, ASCII_LID, ASCII_LIDVID, ASCII_LIDVID_LID, ASCII_MD5_Checksum, ASCII_NonNegative_Integer, ASCII_Numeric_Base16, ASCII_Numeric_Base2, ASCII_Numeric_Base8, ASCII_Real, ASCII_String, ASCII_Time, ASCII_VID, UTF8_String**
      attribute: **description** ^{Optional}
      attribute: **field_format** ^{Optional}
      attribute: **field_number** ^{Optional}
      attribute: **maximum_field_length** ^{Optional}
      attribute: **name**
      attribute: **scaling_factor** ^{Optional}
      attribute: **unit** ^{Optional}
      attribute: **value_offset** ^{Optional}

      - **Field_Statistics - occurs 0 to 1 times**

        description: **The Field Statistics class provides a set of metrics for a column**

formed by a field in a repeating record.
role: **Concrete**
attribute: **description** ^{Optional}
attribute: **local_identifier** ^{Optional}
attribute: **maximum** ^{Optional}
attribute: **mean** ^{Optional}
attribute: **median** ^{Optional}
attribute: **minimum** ^{Optional}
attribute: **standard_deviation** ^{Optional}

- **End** Field_Statistics

- **Special_Constants - occurs 0 to 1 times**

  description: **The Special Constants class provides a set of values used to indicate special cases that occur in the data.**
  role: **Concrete**
  attribute: **error_constant** ^{Optional}
  attribute: **high_instrument_saturation** value: **-32765, 255, 3, 65534, FF7FFFFE, FFFCFFFF** ^{Optional}
  attribute: **high_representation_saturation** value: **-32764, 255, 4, 65535, FF7FFFFF, FFFBFFFF** ^{Optional}
  attribute: **invalid_constant** ^{Optional}
  attribute: **low_instrument_saturation** value: **-32766, 0, 2, FF7FFFFD, FFFDFFFF** ^{Optional}
  attribute: **low_representation_saturation** value: **-32767, 1, 16#FF7FFFFC#, 16#FFFEFFFF#** ^{Optional}
  attribute: **missing_constant** ^{Optional}
  attribute: **not_applicable_constant** ^{Optional}
  attribute: **saturated_constant** ^{Optional}
  attribute: **unknown_constant** ^{Optional}
  attribute: **valid_maximum** value: **254, 32767, 65522** ^{Optional}
  attribute: **valid_minimum** value: **-32752, 1, 3, 5, FF7FFFFA, FFEFFFFF** ^{Optional}

  - **End** Special_Constants
- **End** Field_Delimited

- **Group_Field_Delimited - occurs 1 to * times**

  description: **The Field_Group_Delimited class allows a group of delimited fields.**
  role: **Concrete**
  attribute: **fields**
  attribute: **group_number** ^{Optional}
  attribute: **groups**
  attribute: **repetitions**

  - **Field_Delimited - occurs 1 to * times**

    description: **The Field_Delimited class defines a field of a delimited record or a field of a delimited group.**
    role: **Concrete**
    attribute: **data_type** value: **ASCII_AnyURI, ASCII_Boolean, ASCII_DOI, ASCII_Date, ASCII_Date_DOY, ASCII_Date_Time, ASCII_Date_Time_DOY, ASCII_Date_Time_UTC, ASCII_Date_Time_YMD, ASCII_Date_YMD, ASCII_Directory_Path_Name, ASCII_File_Name, ASCII_File_Specification_Name, ASCII_Integer, ASCII_LID, ASCII_LIDVID, ASCII_LIDVID_LID, ASCII_MD5_Checksum, ASCII_NonNegative_Integer, ASCII_Numeric_Base16, ASCII_Numeric_Base2, ASCII_Numeric_Base8, ASCII_Real, ASCII_String, ASCII_Time, ASCII_VID, UTF8_String**
    attribute: **description** ^{Optional}
    attribute: **field_format** ^{Optional}
    attribute: **field_number** ^{Optional}
    attribute: **maximum_field_length** ^{Optional}
    attribute: **name**
    attribute: **scaling_factor** ^{Optional}
    attribute: **unit** ^{Optional}
    attribute: **value_offset** ^{Optional}

    - **Field_Statistics - occurs 0 to 1 times**

      description: **The Field Statistics class provides a set of metrics for a column formed by a field in a repeating record.**

role: **Concrete**
attribute: **description** ^{Optional}
attribute: **local_identifier** ^{Optional}
attribute: **maximum** ^{Optional}
attribute: **mean** ^{Optional}
attribute: **median** ^{Optional}
attribute: **minimum** ^{Optional}
attribute: **standard_deviation** ^{Optional}

- **End** Field_Statistics

- **Special_Constants - occurs 0 to 1 times**

  description: **The Special Constants class provides a set of values used to indicate special cases that occur in the data.**
  role: **Concrete**
  attribute: **error_constant** ^{Optional}
  attribute: **high_instrument_saturation** value: **-32765, 255, 3, 65534, FF7FFFFE, FFFCFFFF** ^{Optional}
  attribute: **high_representation_saturation** value: **-32764, 255, 4, 65535, FF7FFFFF, FFFBFFFF** ^{Optional}
  attribute: **invalid_constant** ^{Optional}
  attribute: **low_instrument_saturation** value: **-32766, 0, 2, FF7FFFFD, FFFDFFFF** ^{Optional}
  attribute: **low_representation_saturation** value: **-32767, 1, 16#FF7FFFFC#, 16#FFFEFFFF#** ^{Optional}
  attribute: **missing_constant** ^{Optional}
  attribute: **not_applicable_constant** ^{Optional}
  attribute: **saturated_constant** ^{Optional}
  attribute: **unknown_constant** ^{Optional}
  attribute: **valid_maximum** value: **254, 32767, 65522** ^{Optional}
  attribute: **valid_minimum** value: **-32752, 1, 3, 5, FF7FFFFA, FFEFFFFF** ^{Optional}

  - **End** Special_Constants
  - **End** Field_Delimited
  - **End** Group_Field_Delimited
- **End** Record_Delimited

- **Uniformly_Sampled - occurs 0 to 1 times**

  description: **The Uniformly_Sampled class provides parameters for a uniformly sampled table.**
  role: **Concrete**
  attribute: **first_sampling_parameter_value**
  attribute: **last_sampling_parameter_value**
  attribute: **sampling_parameter_interval**
  attribute: **sampling_parameter_name**
  attribute: **sampling_parameter_scale** value: **Exponential, Linear, Logarithmic** ^{Optional}
  attribute: **sampling_parameter_unit**

  - **End** Uniformly_Sampled
  - **End** Table_Delimited
- **End** File_Area_Observational

- **File_Area_Observational_Supplemental - occurs 0 to * times**

  description: **The File Area Observational Supplemental class describes, for an observational product, additional files and one or more tagged_data_objects contained within the file.**
  role: **Concrete**

  - **Array_1D - occurs 1 to * times**

    description: **The Array 1D class is the parent class for all one dimensional array based classes.**
    role: **Concrete**
    attribute: **axes** value: **1**
    attribute: **axis_index_order** value: **Last Index Fastest**
    attribute: **description** ^{Optional}
    attribute: **local_identifier** ^{Optional}
    attribute: **name** ^{Optional}
    attribute: **offset**

- **Axis_Array occurs 1 times**

  description: **The Axis Array class is used as a component of the array class and defines an axis of the array.**
  role: **Concrete**
  attribute: **axis_name**
  attribute: **elements**
  attribute: **local_identifier** Optional
  attribute: **sequence_number**
  attribute: **unit** Optional

  - **Band_Bin_Set - occurs 0 to 1 times**

    description: **The Band_Bin_Set class contains the spectral characteristics for all the spectral bands in a qube.**
    role: **Concrete**

    - **Band_Bin - occurs 1 to * times**

      description: **The Band_Bin class specifies the characteristics of an individual spectral band in a spectral qube.**
      role: **Concrete**
      attribute: **band_number**
      attribute: **band_width**
      attribute: **center_wavelength**
      attribute: **detector_number** Optional
      attribute: **filter_number** Optional
      attribute: **grating_position** Optional
      attribute: **original_band** Optional
      attribute: **scaling_factor** Optional
      attribute: **standard_deviation** Optional
      attribute: **value_offset** Optional

    - **End** Band_Bin
  - **End** Band_Bin_Set
- **End** Axis_Array

- **Element_Array occurs 1 times**

  description: **The Element Array class is used as a component of the array class and defines an element of the array.**
  role: **Concrete**
  attribute: **data_type** value: **ComplexLSB16, ComplexLSB8, ComplexMSB16, ComplexMSB8, IEEE754LSBDouble, IEEE754LSBSingle, IEEE754MSBDouble, IEEE754MSBSingle, SignedBitString, SignedByte, SignedLSB2, SignedLSB4, SignedLSB8, SignedMSB2, SignedMSB4, SignedMSB8, UnsignedBitString, UnsignedByte, UnsignedLSB2, UnsignedLSB4, UnsignedLSB8, UnsignedMSB2, UnsignedMSB4, UnsignedMSB8**
  attribute: **scaling_factor** Optional
  attribute: **unit** Optional
  attribute: **value_offset** Optional

- **End** Element_Array

- **Object_Statistics - occurs 0 to 1 times**

  description: **The Object Statistics class provides a set of values that provide metrics about the object.**
  role: **Concrete**
  attribute: **bit_mask** Optional
  attribute: **description** Optional
  attribute: **local_identifier** Optional
  attribute: **maximum** Optional
  attribute: **maximum_scaled_value** Optional
  attribute: **md5_checksum** Optional
  attribute: **mean** Optional
  attribute: **median** Optional
  attribute: **minimum** Optional
  attribute: **minimum_scaled_value** Optional
  attribute: **standard_deviation** Optional

- **End** Object_Statistics

- **Special_Constants - occurs 0 to 1 times**

  description: **The Special Constants class provides a set of values used to indicate special cases that occur in the data.**
  role: **Concrete**
  attribute: **error_constant** Optional
  attribute: **high_instrument_saturation** value: **-32765, 255, 3, 65534, FF7FFFFE, FFFCFFFF** Optional

  attribute: **high_representation_saturation** value: **-32764, 255, 4, 65535, FF7FFFFF, FFFBFFFF** Optional

  attribute: **invalid_constant** Optional
  attribute: **low_instrument_saturation** value: **-32766, 0, 2, FF7FFFFD, FFFDFFFF** Optional
  attribute: **low_representation_saturation** value: **-32767, 1, 16#FF7FFFFC#, 16#FFFEFFFF#** Optional

  attribute: **missing_constant** Optional
  attribute: **not_applicable_constant** Optional
  attribute: **saturated_constant** Optional
  attribute: **unknown_constant** Optional
  attribute: **valid_maximum** value: **254, 32767, 65522** Optional
  attribute: **valid_minimum** value: **-32752, 1, 3, 5, FF7FFFFA, FFEFFFFF** Optional

  - **End** Special_Constants
- **End** Array_1D

- **Array_2D - occurs 1 to * times**

  description: **The Array 2D class is the parent class for all two dimensional array based classes.**
  role: **Concrete**
  attribute: **axes** value: **2**
  attribute: **axis_index_order** value: **Last Index Fastest**
  attribute: **description** Optional
  attribute: **local_identifier** Optional
  attribute: **name** Optional
  attribute: **offset**

  - **Axis_Array occurs 2 times**

    description: **The Axis Array class is used as a component of the array class and defines an axis of the array.**
    role: **Concrete**
    attribute: **axis_name**
    attribute: **elements**
    attribute: **local_identifier** Optional
    attribute: **sequence_number**
    attribute: **unit** Optional

    - **Band_Bin_Set - occurs 0 to 1 times**

      description: **The Band_Bin_Set class contains the spectral characteristics for all the spectral bands in a qube.**
      role: **Concrete**

      - **Band_Bin - occurs 1 to * times**

        description: **The Band_Bin class specifies the characteristics of an individual spectral band in a spectral qube.**
        role: **Concrete**
        attribute: **band_number**
        attribute: **band_width**
        attribute: **center_wavelength**
        attribute: **detector_number** Optional
        attribute: **filter_number** Optional
        attribute: **grating_position** Optional
        attribute: **original_band** Optional
        attribute: **scaling_factor** Optional
        attribute: **standard_deviation** Optional
        attribute: **value_offset** Optional

        - **End** Band_Bin
      - **End** Band_Bin_Set
  - **End** Axis_Array

- **Element_Array occurs 1 times**

  description: **The Element Array class is used as a component of the array class and defines an element of the array.**
  role: **Concrete**
  attribute: **data_type** value: **ComplexLSB16, ComplexLSB8, ComplexMSB16, ComplexMSB8, IEEE754LSBDouble, IEEE754LSBSingle, IEEE754MSBDouble, IEEE754MSBSingle, SignedBitString, SignedByte, SignedLSB2, SignedLSB4, SignedLSB8, SignedMSB2, SignedMSB4, SignedMSB8, UnsignedBitString, UnsignedByte, UnsignedLSB2, UnsignedLSB4, UnsignedLSB8, UnsignedMSB2, UnsignedMSB4, UnsignedMSB8**
  attribute: **scaling_factor** Optional
  attribute: **unit** Optional
  attribute: **value_offset** Optional

- **End** Element_Array

- **Object_Statistics - occurs 0 to 1 times**

  description: **The Object Statistics class provides a set of values that provide metrics about the object.**
  role: **Concrete**
  attribute: **bit_mask** Optional
  attribute: **description** Optional
  attribute: **local_identifier** Optional
  attribute: **maximum** Optional
  attribute: **maximum_scaled_value** Optional
  attribute: **md5_checksum** Optional
  attribute: **mean** Optional
  attribute: **median** Optional
  attribute: **minimum** Optional
  attribute: **minimum_scaled_value** Optional
  attribute: **standard_deviation** Optional

- **End** Object_Statistics

- **Special_Constants - occurs 0 to 1 times**

  description: **The Special Constants class provides a set of values used to indicate special cases that occur in the data.**
  role: **Concrete**
  attribute: **error_constant** Optional
  attribute: **high_instrument_saturation** value: **-32765, 255, 3, 65534, FF7FFFFE, FFFCFFFF** Optional
  attribute: **high_representation_saturation** value: **-32764, 255, 4, 65535, FF7FFFFF, FFFBFFFF** Optional
  attribute: **invalid_constant** Optional
  attribute: **low_instrument_saturation** value: **-32766, 0, 2, FF7FFFFD, FFFDFFFF** Optional
  attribute: **low_representation_saturation** value: **-32767, 1, 16#FF7FFFFC#, 16#FFFEFFFF#** Optional
  attribute: **missing_constant** Optional
  attribute: **not_applicable_constant** Optional
  attribute: **saturated_constant** Optional
  attribute: **unknown_constant** Optional
  attribute: **valid_maximum** value: **254, 32767, 65522** Optional
  attribute: **valid_minimum** value: **-32752, 1, 3, 5, FF7FFFFA, FFEFFFFF** Optional

  - **End** Special_Constants
- **End** Array_2D

- **Array_2D_Image - occurs 1 to * times**

  description: **The Array 2D Image class is an extension of the Array 2D class and defines a two dimensional image.**
  role: **Concrete**
  attribute: **axes** value: **2**
  attribute: **axis_index_order** value: **Last Index Fastest**
  attribute: **description** Optional
  attribute: **local_identifier** Optional
  attribute: **name** Optional
  attribute: **offset**

- **Axis_Array occurs 2 times**

  description: **The Axis Array class is used as a component of the array class and defines an axis of the array.**
  role: **Concrete**
  attribute: **axis_name**
  attribute: **elements**
  attribute: **local_identifier** Optional
  attribute: **sequence_number**
  attribute: **unit** Optional

  - **Band_Bin_Set - occurs 0 to 1 times**

    description: **The Band_Bin_Set class contains the spectral characteristics for all the spectral bands in a qube.**
    role: **Concrete**

    - **Band_Bin - occurs 1 to * times**

      description: **The Band_Bin class specifies the characteristics of an individual spectral band in a spectral qube.**
      role: **Concrete**
      attribute: **band_number**
      attribute: **band_width**
      attribute: **center_wavelength**
      attribute: **detector_number** Optional
      attribute: **filter_number** Optional
      attribute: **grating_position** Optional
      attribute: **original_band** Optional
      attribute: **scaling_factor** Optional
      attribute: **standard_deviation** Optional
      attribute: **value_offset** Optional

      - **End** Band_Bin
    - **End** Band_Bin_Set
- **End** Axis_Array

- **Display_2D_Image - occurs 0 to 1 times**

  description: **The Display_2D_Image class provides attributes to enable the display of a 2 dimensional image.**
  role: **Concrete**
  attribute: **line_display_direction** value: **Down, Up**
  attribute: **sample_display_direction** value: **Right**

- **End** Display_2D_Image

- **Element_Array occurs 1 times**

  description: **The Element Array class is used as a component of the array class and defines an element of the array.**
  role: **Concrete**
  attribute: **data_type** value: **ComplexLSB16, ComplexLSB8, ComplexMSB16, ComplexMSB8, IEEE754LSBDouble, IEEE754LSBSingle, IEEE754MSBDouble, IEEE754MSBSingle, SignedBitString, SignedByte, SignedLSB2, SignedLSB4, SignedLSB8, SignedMSB2, SignedMSB4, SignedMSB8, UnsignedBitString, UnsignedByte, UnsignedLSB2, UnsignedLSB4, UnsignedLSB8, UnsignedMSB2, UnsignedMSB4, UnsignedMSB8**
  attribute: **scaling_factor** Optional
  attribute: **unit** Optional
  attribute: **value_offset** Optional

- **End** Element_Array

- **Object_Statistics - occurs 0 to 1 times**

  description: **The Object Statistics class provides a set of values that provide metrics about the object.**
  role: **Concrete**
  attribute: **bit_mask** Optional
  attribute: **description** Optional
  attribute: **local_identifier** Optional
  attribute: **maximum** Optional
  attribute: **maximum_scaled_value** Optional

attribute: **md5_checksum** ^{Optional}
attribute: **mean** ^{Optional}
attribute: **median** ^{Optional}
attribute: **minimum** ^{Optional}
attribute: **minimum_scaled_value** ^{Optional}
attribute: **standard_deviation** ^{Optional}

- **End** Object_Statistics

- **Special_Constants - occurs 0 to 1 times**

  description: **The Special Constants class provides a set of values used to indicate special cases that occur in the data.**
  role: **Concrete**

  attribute: **error_constant** ^{Optional}
  attribute: **high_instrument_saturation** value: **-32765, 255, 3, 65534, FF7FFFFE, FFFCFFFF** ^{Optional}

  attribute: **high_representation_saturation** value: **-32764, 255, 4, 65535, FF7FFFFF, FFFBFFFF** ^{Optional}

  attribute: **invalid_constant** ^{Optional}
  attribute: **low_instrument_saturation** value: **-32766, 0, 2, FF7FFFFD, FFFDFFFF** ^{Optional}
  attribute: **low_representation_saturation** value: **-32767, 1, 16#FF7FFFFC#, 16#FFFEFFFF#** ^{Optional}

  attribute: **missing_constant** ^{Optional}
  attribute: **not_applicable_constant** ^{Optional}
  attribute: **saturated_constant** ^{Optional}
  attribute: **unknown_constant** ^{Optional}
  attribute: **valid_maximum** value: **254, 32767, 65522** ^{Optional}
  attribute: **valid_minimum** value: **-32752, 1, 3, 5, FF7FFFFA, FFEFFFFF** ^{Optional}

    - **End** Special_Constants
- **End** Array_2D_Image

- **Array_2D_Map - occurs 1 to * times**

  description: **The Array 2D Map class is an extension of the Array 2D class and defines a two dimensional map.**
  role: **Concrete**
  attribute: **axes** value: **2**
  attribute: **axis_index_order** value: **Last Index Fastest**
  attribute: **description** ^{Optional}
  attribute: **local_identifier** ^{Optional}
  attribute: **name** ^{Optional}
  attribute: **offset**

    - **Axis_Array occurs 2 times**

      description: **The Axis Array class is used as a component of the array class and defines an axis of the array.**
      role: **Concrete**
      attribute: **axis_name**
      attribute: **elements**
      attribute: **local_identifier** ^{Optional}
      attribute: **sequence_number**
      attribute: **unit** ^{Optional}

        - **Band_Bin_Set - occurs 0 to 1 times**

          description: **The Band_Bin_Set class contains the spectral characteristics for all the spectral bands in a qube.**
          role: **Concrete**

            - **Band_Bin - occurs 1 to * times**

              description: **The Band_Bin class specifies the characteristics of an individual spectral band in a spectral qube.**
              role: **Concrete**
              attribute: **band_number**
              attribute: **band_width**
              attribute: **center_wavelength**
              attribute: **detector_number** ^{Optional}

attribute: **filter_number** Optional
attribute: **grating_position** Optional
attribute: **original_band** Optional
attribute: **scaling_factor** Optional
attribute: **standard_deviation** Optional
attribute: **value_offset** Optional

- **End** Band_Bin
- **End** Band_Bin_Set
- **End** Axis_Array

- **Display_2D_Image - occurs 0 to 1 times**

  description: **The Display_2D_Image class provides attributes to enable the display of a 2 dimensional image.**
  role: **Concrete**
  attribute: **line_display_direction** value: **Down, Up**
  attribute: **sample_display_direction** value: **Right**

- **End** Display_2D_Image

- **Element_Array occurs 1 times**

  description: **The Element Array class is used as a component of the array class and defines an element of the array.**
  role: **Concrete**
  attribute: **data_type** value: **ComplexLSB16, ComplexLSB8, ComplexMSB16, ComplexMSB8, IEEE754LSBDouble, IEEE754LSBSingle, IEEE754MSBDouble, IEEE754MSBSingle, SignedBitString, SignedByte, SignedLSB2, SignedLSB4, SignedLSB8, SignedMSB2, SignedMSB4, SignedMSB8, UnsignedBitString, UnsignedByte, UnsignedLSB2, UnsignedLSB4, UnsignedLSB8, UnsignedMSB2, UnsignedMSB4, UnsignedMSB8**
  attribute: **scaling_factor** Optional
  attribute: **unit** Optional
  attribute: **value_offset** Optional

- **End** Element_Array

- **Object_Statistics - occurs 0 to 1 times**

  description: **The Object Statistics class provides a set of values that provide metrics about the object.**
  role: **Concrete**
  attribute: **bit_mask** Optional
  attribute: **description** Optional
  attribute: **local_identifier** Optional
  attribute: **maximum** Optional
  attribute: **maximum_scaled_value** Optional
  attribute: **md5_checksum** Optional
  attribute: **mean** Optional
  attribute: **median** Optional
  attribute: **minimum** Optional
  attribute: **minimum_scaled_value** Optional
  attribute: **standard_deviation** Optional

- **End** Object_Statistics

- **Special_Constants - occurs 0 to 1 times**

  description: **The Special Constants class provides a set of values used to indicate special cases that occur in the data.**
  role: **Concrete**
  attribute: **error_constant** Optional
  attribute: **high_instrument_saturation** value: **-32765, 255, 3, 65534, FF7FFFFE, FFFCFFFF** Optional
  attribute: **high_representation_saturation** value: **-32764, 255, 4, 65535, FF7FFFFF, FFFBFFFF** Optional
  attribute: **invalid_constant** Optional
  attribute: **low_instrument_saturation** value: **-32766, 0, 2, FF7FFFFD, FFFDFFFF** Optional
  attribute: **low_representation_saturation** value: **-32767, 1, 16#FF7FFFFC#, 16#FFFEFFFF#** Optional
  attribute: **missing_constant** Optional

attribute: **not_applicable_constant** ^{Optional}
attribute: **saturated_constant** ^{Optional}
attribute: **unknown_constant** ^{Optional}
attribute: **valid_maximum** value: **254, 32767, 65522** ^{Optional}
attribute: **valid_minimum** value: **-32752, 1, 3, 5, FF7FFFFA, FFEFFFFF** ^{Optional}

- **End** Special_Constants
- **End** Array_2D_Map

- **Array_2D_Spectrum - occurs 1 to * times**

  description: **The Array 2D Spectrum class is an extension of the Array 2D class and defines a two dimensional spectrum.**
  role: **Concrete**
  attribute: **axes** value: **2**
  attribute: **axis_index_order** value: **Last Index Fastest**
  attribute: **description** ^{Optional}
  attribute: **local_identifier** ^{Optional}
  attribute: **name** ^{Optional}
  attribute: **offset**

  - **Axis_Array occurs 2 times**

    description: **The Axis Array class is used as a component of the array class and defines an axis of the array.**
    role: **Concrete**
    attribute: **axis_name**
    attribute: **elements**
    attribute: **local_identifier** ^{Optional}
    attribute: **sequence_number**
    attribute: **unit** ^{Optional}

    - **Band_Bin_Set - occurs 0 to 1 times**

      description: **The Band_Bin_Set class contains the spectral characteristics for all the spectral bands in a qube.**
      role: **Concrete**

      - **Band_Bin - occurs 1 to * times**

        description: **The Band_Bin class specifies the characteristics of an individual spectral band in a spectral qube.**
        role: **Concrete**
        attribute: **band_number**
        attribute: **band_width**
        attribute: **center_wavelength**
        attribute: **detector_number** ^{Optional}
        attribute: **filter_number** ^{Optional}
        attribute: **grating_position** ^{Optional}
        attribute: **original_band** ^{Optional}
        attribute: **scaling_factor** ^{Optional}
        attribute: **standard_deviation** ^{Optional}
        attribute: **value_offset** ^{Optional}

      - **End** Band_Bin
    - **End** Band_Bin_Set
  - **End** Axis_Array

  - **Display_2D_Image - occurs 0 to 1 times**

    description: **The Display_2D_Image class provides attributes to enable the display of a 2 dimensional image.**
    role: **Concrete**
    attribute: **line_display_direction** value: **Down, Up**
    attribute: **sample_display_direction** value: **Right**

  - **End** Display_2D_Image

  - **Element_Array occurs 1 times**

    description: **The Element Array class is used as a component of the array class and defines an element of the array.**

role: **Concrete**
attribute: **data_type** value: **ComplexLSB16, ComplexLSB8, ComplexMSB16, ComplexMSB8, IEEE754LSBDouble, IEEE754LSBSingle, IEEE754MSBDouble, IEEE754MSBSingle, SignedBitString, SignedByte, SignedLSB2, SignedLSB4, SignedLSB8, SignedMSB2, SignedMSB4, SignedMSB8, UnsignedBitString, UnsignedByte, UnsignedLSB2, UnsignedLSB4, UnsignedLSB8, UnsignedMSB2, UnsignedMSB4, UnsignedMSB8**
attribute: **scaling_factor** Optional
attribute: **unit** Optional
attribute: **value_offset** Optional

- **End** Element_Array

- **Object_Statistics - occurs 0 to 1 times**

  description: **The Object Statistics class provides a set of values that provide metrics about the object.**
  role: **Concrete**
  attribute: **bit_mask** Optional
  attribute: **description** Optional
  attribute: **local_identifier** Optional
  attribute: **maximum** Optional
  attribute: **maximum_scaled_value** Optional
  attribute: **md5_checksum** Optional
  attribute: **mean** Optional
  attribute: **median** Optional
  attribute: **minimum** Optional
  attribute: **minimum_scaled_value** Optional
  attribute: **standard_deviation** Optional

- **End** Object_Statistics

- **Special_Constants - occurs 0 to 1 times**

  description: **The Special Constants class provides a set of values used to indicate special cases that occur in the data.**
  role: **Concrete**
  attribute: **error_constant** Optional
  attribute: **high_instrument_saturation** value: **-32765, 255, 3, 65534, FF7FFFFE, FFFCFFFF** Optional
  attribute: **high_representation_saturation** value: **-32764, 255, 4, 65535, FF7FFFFF, FFFBFFFF** Optional
  attribute: **invalid_constant** Optional
  attribute: **low_instrument_saturation** value: **-32766, 0, 2, FF7FFFFD, FFFDFFFF** Optional
  attribute: **low_representation_saturation** value: **-32767, 1, 16#FF7FFFFC#, 16#FFFEFFFF#** Optional
  attribute: **missing_constant** Optional
  attribute: **not_applicable_constant** Optional
  attribute: **saturated_constant** Optional
  attribute: **unknown_constant** Optional
  attribute: **valid_maximum** value: **254, 32767, 65522** Optional
  attribute: **valid_minimum** value: **-32752, 1, 3, 5, FF7FFFFA, FFEFFFFF** Optional

  - **End** Special_Constants
- **End** Array_2D_Spectrum

- **Array_3D - occurs 1 to * times**

  description: **The Array 3D class is the parent class for all three dimensional array based classes.**
  role: **Concrete**
  attribute: **axes** value: **3**
  attribute: **axis_index_order** value: **Last Index Fastest**
  attribute: **description** Optional
  attribute: **local_identifier** Optional
  attribute: **name** Optional
  attribute: **offset**

  - **Axis_Array occurs 3 times**

    description: **The Axis Array class is used as a component of the array class and defines an axis of the array.**
    role: **Concrete**

attribute: **axis_name**
attribute: **elements**
attribute: **local_identifier** ^{Optional}
attribute: **sequence_number**
attribute: **unit** ^{Optional}

- **Band_Bin_Set - occurs 0 to 1 times**

    description: **The Band_Bin_Set class contains the spectral characteristics for all the spectral bands in a qube.**
    role: **Concrete**

    - **Band_Bin - occurs 1 to * times**

        description: **The Band_Bin class specifies the characteristics of an individual spectral band in a spectral qube.**
        role: **Concrete**
        attribute: **band_number**
        attribute: **band_width**
        attribute: **center_wavelength**
        attribute: **detector_number** ^{Optional}
        attribute: **filter_number** ^{Optional}
        attribute: **grating_position** ^{Optional}
        attribute: **original_band** ^{Optional}
        attribute: **scaling_factor** ^{Optional}
        attribute: **standard_deviation** ^{Optional}
        attribute: **value_offset** ^{Optional}

        - **End** Band_Bin
    - **End** Band_Bin_Set
- **End** Axis_Array

- **Element_Array occurs 1 times**

    description: **The Element Array class is used as a component of the array class and defines an element of the array.**
    role: **Concrete**
    attribute: **data_type** value: **ComplexLSB16, ComplexLSB8, ComplexMSB16, ComplexMSB8, IEEE754LSBDouble, IEEE754LSBSingle, IEEE754MSBDouble, IEEE754MSBSingle, SignedBitString, SignedByte, SignedLSB2, SignedLSB4, SignedLSB8, SignedMSB2, SignedMSB4, SignedMSB8, UnsignedBitString, UnsignedByte, UnsignedLSB2, UnsignedLSB4, UnsignedLSB8, UnsignedMSB2, UnsignedMSB4, UnsignedMSB8**
    attribute: **scaling_factor** ^{Optional}
    attribute: **unit** ^{Optional}
    attribute: **value_offset** ^{Optional}

- **End** Element_Array

- **Object_Statistics - occurs 0 to 1 times**

    description: **The Object Statistics class provides a set of values that provide metrics about the object.**
    role: **Concrete**
    attribute: **bit_mask** ^{Optional}
    attribute: **description** ^{Optional}
    attribute: **local_identifier** ^{Optional}
    attribute: **maximum** ^{Optional}
    attribute: **maximum_scaled_value** ^{Optional}
    attribute: **md5_checksum** ^{Optional}
    attribute: **mean** ^{Optional}
    attribute: **median** ^{Optional}
    attribute: **minimum** ^{Optional}
    attribute: **minimum_scaled_value** ^{Optional}
    attribute: **standard_deviation** ^{Optional}

- **End** Object_Statistics

- **Special_Constants - occurs 0 to 1 times**

    description: **The Special Constants class provides a set of values used to indicate special cases that occur in the data.**
    role: **Concrete**

attribute: **error_constant** ^{Optional}

attribute: **high_instrument_saturation** value: **-32765, 255, 3, 65534, FF7FFFFE, FFFCFFFF** ^{Optional}

attribute: **high_representation_saturation** value: **-32764, 255, 4, 65535, FF7FFFFF, FFFBFFFF** ^{Optional}

attribute: **invalid_constant** ^{Optional}

attribute: **low_instrument_saturation** value: **-32766, 0, 2, FF7FFFFD, FFFDFFFF** ^{Optional}

attribute: **low_representation_saturation** value: **-32767, 1, 16#FF7FFFFC#, 16#FFFEFFFF#** ^{Optional}

attribute: **missing_constant** ^{Optional}

attribute: **not_applicable_constant** ^{Optional}

attribute: **saturated_constant** ^{Optional}

attribute: **unknown_constant** ^{Optional}

attribute: **valid_maximum** value: **254, 32767, 65522** ^{Optional}

attribute: **valid_minimum** value: **-32752, 1, 3, 5, FF7FFFFA, FFEFFFFF** ^{Optional}

- **End** Special_Constants
- **End** Array_3D

- **Array_3D_Image - occurs 1 to * times**

  description: **The Array 3D Image class is an extension of the Array 3D class and defines a three dimensional image.**
  role: **Concrete**
  attribute: **axes** value: **3**
  attribute: **axis_index_order** value: **Last Index Fastest**
  attribute: **description** ^{Optional}
  attribute: **local_identifier** ^{Optional}
  attribute: **name** ^{Optional}
  attribute: **offset**

  - **Axis_Array occurs 3 times**

    description: **The Axis Array class is used as a component of the array class and defines an axis of the array.**
    role: **Concrete**
    attribute: **axis_name**
    attribute: **elements**
    attribute: **local_identifier** ^{Optional}
    attribute: **sequence_number**
    attribute: **unit** ^{Optional}

    - **Band_Bin_Set - occurs 0 to 1 times**

      description: **The Band_Bin_Set class contains the spectral characteristics for all the spectral bands in a qube.**
      role: **Concrete**

      - **Band_Bin - occurs 1 to * times**

        description: **The Band_Bin class specifies the characteristics of an individual spectral band in a spectral qube.**
        role: **Concrete**
        attribute: **band_number**
        attribute: **band_width**
        attribute: **center_wavelength**
        attribute: **detector_number** ^{Optional}
        attribute: **filter_number** ^{Optional}
        attribute: **grating_position** ^{Optional}
        attribute: **original_band** ^{Optional}
        attribute: **scaling_factor** ^{Optional}
        attribute: **standard_deviation** ^{Optional}
        attribute: **value_offset** ^{Optional}

        - **End** Band_Bin
      - **End** Band_Bin_Set
  - **End** Axis_Array

  - **Element_Array occurs 1 times**

    description: **The Element Array class is used as a component of the array class and defines an element of the array.**

role: **Concrete**
attribute: **data_type** value: **ComplexLSB16, ComplexLSB8, ComplexMSB16, ComplexMSB8, IEEE754LSBDouble, IEEE754LSBSingle, IEEE754MSBDouble, IEEE754MSBSingle, SignedBitString, SignedByte, SignedLSB2, SignedLSB4, SignedLSB8, SignedMSB2, SignedMSB4, SignedMSB8, UnsignedBitString, UnsignedByte, UnsignedLSB2, UnsignedLSB4, UnsignedLSB8, UnsignedMSB2, UnsignedMSB4, UnsignedMSB8**
attribute: **scaling_factor** Optional
attribute: **unit** Optional
attribute: **value_offset** Optional

- **End** Element_Array

- **Object_Statistics - occurs 0 to 1 times**

  description: **The Object Statistics class provides a set of values that provide metrics about the object.**
  role: **Concrete**
  attribute: **bit_mask** Optional
  attribute: **description** Optional
  attribute: **local_identifier** Optional
  attribute: **maximum** Optional
  attribute: **maximum_scaled_value** Optional
  attribute: **md5_checksum** Optional
  attribute: **mean** Optional
  attribute: **median** Optional
  attribute: **minimum** Optional
  attribute: **minimum_scaled_value** Optional
  attribute: **standard_deviation** Optional

- **End** Object_Statistics

- **Special_Constants - occurs 0 to 1 times**

  description: **The Special Constants class provides a set of values used to indicate special cases that occur in the data.**
  role: **Concrete**
  attribute: **error_constant** Optional
  attribute: **high_instrument_saturation** value: **-32765, 255, 3, 65534, FF7FFFFE, FFFCFFFF** Optional
  attribute: **high_representation_saturation** value: **-32764, 255, 4, 65535, FF7FFFFF, FFFBFFFF** Optional
  attribute: **invalid_constant** Optional
  attribute: **low_instrument_saturation** value: **-32766, 0, 2, FF7FFFFD, FFFDFFFF** Optional
  attribute: **low_representation_saturation** value: **-32767, 1, 16#FF7FFFFC#, 16#FFFEFFFF#** Optional
  attribute: **missing_constant** Optional
  attribute: **not_applicable_constant** Optional
  attribute: **saturated_constant** Optional
  attribute: **unknown_constant** Optional
  attribute: **valid_maximum** value: **254, 32767, 65522** Optional
  attribute: **valid_minimum** value: **-32752, 1, 3, 5, FF7FFFFA, FFEFFFFF** Optional

  - **End** Special_Constants
- **End** Array_3D_Image

- **Array_3D_Movie - occurs 1 to * times**

  description: **The Array 3D Movie class is an extension of the Array 3D class and defines a movie as a set of two dimensional images in a time series.**
  role: **Concrete**
  attribute: **axes** value: **3**
  attribute: **axis_index_order** value: **Last Index Fastest**
  attribute: **description** Optional
  attribute: **local_identifier** Optional
  attribute: **name** Optional
  attribute: **offset**

  - **Axis_Array occurs 3 times**

    description: **The Axis Array class is used as a component of the array class and defines an axis of the array.**

role: **Concrete**
attribute: **axis_name**
attribute: **elements**
attribute: **local_identifier** Optional
attribute: **sequence_number**
attribute: **unit** Optional

- **Band_Bin_Set - occurs 0 to 1 times**

  description: **The Band_Bin_Set class contains the spectral characteristics for all the spectral bands in a qube.**
  role: **Concrete**

  - **Band_Bin - occurs 1 to * times**

    description: **The Band_Bin class specifies the characteristics of an individual spectral band in a spectral qube.**
    role: **Concrete**
    attribute: **band_number**
    attribute: **band_width**
    attribute: **center_wavelength**
    attribute: **detector_number** Optional
    attribute: **filter_number** Optional
    attribute: **grating_position** Optional
    attribute: **original_band** Optional
    attribute: **scaling_factor** Optional
    attribute: **standard_deviation** Optional
    attribute: **value_offset** Optional

    - **End** Band_Bin
  - **End** Band_Bin_Set
- **End** Axis_Array

- **Element_Array occurs 1 times**

  description: **The Element Array class is used as a component of the array class and defines an element of the array.**
  role: **Concrete**
  attribute: **data_type** value: **ComplexLSB16, ComplexLSB8, ComplexMSB16, ComplexMSB8, IEEE754LSBDouble, IEEE754LSBSingle, IEEE754MSBDouble, IEEE754MSBSingle, SignedBitString, SignedByte, SignedLSB2, SignedLSB4, SignedLSB8, SignedMSB2, SignedMSB4, SignedMSB8, UnsignedBitString, UnsignedByte, UnsignedLSB2, UnsignedLSB4, UnsignedLSB8, UnsignedMSB2, UnsignedMSB4, UnsignedMSB8**
  attribute: **scaling_factor** Optional
  attribute: **unit** Optional
  attribute: **value_offset** Optional

- **End** Element_Array

- **Object_Statistics - occurs 0 to 1 times**

  description: **The Object Statistics class provides a set of values that provide metrics about the object.**
  role: **Concrete**
  attribute: **bit_mask** Optional
  attribute: **description** Optional
  attribute: **local_identifier** Optional
  attribute: **maximum** Optional
  attribute: **maximum_scaled_value** Optional
  attribute: **md5_checksum** Optional
  attribute: **mean** Optional
  attribute: **median** Optional
  attribute: **minimum** Optional
  attribute: **minimum_scaled_value** Optional
  attribute: **standard_deviation** Optional

- **End** Object_Statistics

- **Special_Constants - occurs 0 to 1 times**

  description: **The Special Constants class provides a set of values used to indicate special cases that occur in the data.**

role: **Concrete**
attribute: **error_constant** ^{Optional}
attribute: **high_instrument_saturation** value: **-32765, 255, 3, 65534, FF7FFFFE, FFFCFFFF** ^{Optional}

attribute: **high_representation_saturation** value: **-32764, 255, 4, 65535, FF7FFFFF, FFFBFFFF** ^{Optional}

attribute: **invalid_constant** ^{Optional}
attribute: **low_instrument_saturation** value: **-32766, 0, 2, FF7FFFFD, FFFDFFFF** ^{Optional}
attribute: **low_representation_saturation** value: **-32767, 1, 16#FF7FFFFC#, 16#FFFEFFFF#** ^{Optional}

attribute: **missing_constant** ^{Optional}
attribute: **not_applicable_constant** ^{Optional}
attribute: **saturated_constant** ^{Optional}
attribute: **unknown_constant** ^{Optional}
attribute: **valid_maximum** value: **254, 32767, 65522** ^{Optional}
attribute: **valid_minimum** value: **-32752, 1, 3, 5, FF7FFFFA, FFEFFFFF** ^{Optional}

- **End** Special_Constants
- **End** Array_3D_Movie

- **Array_3D_Spectrum - occurs 1 to * times**

  description: **The Array 3D Spectrum class is an extension of the Array 3D class and defines a three dimensional spectrum.**
  role: **Concrete**
  attribute: **axes** value: **3**
  attribute: **axis_index_order** value: **Last Index Fastest**
  attribute: **description** ^{Optional}
  attribute: **local_identifier** ^{Optional}
  attribute: **name** ^{Optional}
  attribute: **offset**

  - **Axis_Array occurs 3 times**

    description: **The Axis Array class is used as a component of the array class and defines an axis of the array.**
    role: **Concrete**
    attribute: **axis_name**
    attribute: **elements**
    attribute: **local_identifier** ^{Optional}
    attribute: **sequence_number**
    attribute: **unit** ^{Optional}

    - **Band_Bin_Set - occurs 0 to 1 times**

      description: **The Band_Bin_Set class contains the spectral characteristics for all the spectral bands in a qube.**
      role: **Concrete**

      - **Band_Bin - occurs 1 to * times**

        description: **The Band_Bin class specifies the characteristics of an individual spectral band in a spectral qube.**
        role: **Concrete**
        attribute: **band_number**
        attribute: **band_width**
        attribute: **center_wavelength**
        attribute: **detector_number** ^{Optional}
        attribute: **filter_number** ^{Optional}
        attribute: **grating_position** ^{Optional}
        attribute: **original_band** ^{Optional}
        attribute: **scaling_factor** ^{Optional}
        attribute: **standard_deviation** ^{Optional}
        attribute: **value_offset** ^{Optional}

        - **End** Band_Bin
      - **End** Band_Bin_Set
    - **End** Axis_Array

  - **Element_Array occurs 1 times**

    description: **The Element Array class is used as a component of the array class and defines**

an element of the array.
role: **Concrete**
attribute: **data_type** value: **ComplexLSB16, ComplexLSB8, ComplexMSB16, ComplexMSB8, IEEE754LSBDouble, IEEE754LSBSingle, IEEE754MSBDouble, IEEE754MSBSingle, SignedBitString, SignedByte, SignedLSB2, SignedLSB4, SignedLSB8, SignedMSB2, SignedMSB4, SignedMSB8, UnsignedBitString, UnsignedByte, UnsignedLSB2, UnsignedLSB4, UnsignedLSB8, UnsignedMSB2, UnsignedMSB4, UnsignedMSB8**
attribute: **scaling_factor** Optional
attribute: **unit** Optional
attribute: **value_offset** Optional

- **End** Element_Array

- **Object_Statistics - occurs 0 to 1 times**

  description: **The Object Statistics class provides a set of values that provide metrics about the object.**
  role: **Concrete**
  attribute: **bit_mask** Optional
  attribute: **description** Optional
  attribute: **local_identifier** Optional
  attribute: **maximum** Optional
  attribute: **maximum_scaled_value** Optional
  attribute: **md5_checksum** Optional
  attribute: **mean** Optional
  attribute: **median** Optional
  attribute: **minimum** Optional
  attribute: **minimum_scaled_value** Optional
  attribute: **standard_deviation** Optional

- **End** Object_Statistics

- **Special_Constants - occurs 0 to 1 times**

  description: **The Special Constants class provides a set of values used to indicate special cases that occur in the data.**
  role: **Concrete**
  attribute: **error_constant** Optional
  attribute: **high_instrument_saturation** value: **-32765, 255, 3, 65534, FF7FFFFE, FFFCFFFF** Optional
  attribute: **high_representation_saturation** value: **-32764, 255, 4, 65535, FF7FFFFF, FFFBFFFF** Optional
  attribute: **invalid_constant** Optional
  attribute: **low_instrument_saturation** value: **-32766, 0, 2, FF7FFFFD, FFFDFFFF** Optional
  attribute: **low_representation_saturation** value: **-32767, 1, 16#FF7FFFFC#, 16#FFFEFFFF#** Optional
  attribute: **missing_constant** Optional
  attribute: **not_applicable_constant** Optional
  attribute: **saturated_constant** Optional
  attribute: **unknown_constant** Optional
  attribute: **valid_maximum** value: **254, 32767, 65522** Optional
  attribute: **valid_minimum** value: **-32752, 1, 3, 5, FF7FFFFA, FFEFFFFF** Optional

  - **End** Special_Constants
- **End** Array_3D_Spectrum

- **Encoded_Binary - occurs 1 to * times**

  description: **The Encoded Binary class describes a binary encoded byte stream. This class is used to describe files in the repository that are being registered using Product_File_Repository.**
  role: **Concrete**
  attribute: **description** Optional
  attribute: **encoding_standard_id** value: **CCSDS Communication Protocols**
  attribute: **local_identifier** Optional
  attribute: **name** Optional
  attribute: **object_length** Optional
  attribute: **offset**

- **End** Encoded_Binary

- **Encoded_Byte_Stream - occurs 1 to * times**

description: **The Encoded Byte Stream class defines byte streams that must be decoded by software before use. These byte streams must only use standard encodings. The Encoded Byte Stream class is the parent class for all encoded byte streams.**
role: **Concrete**
attribute: **description** Optional
attribute: **encoding_standard_id**
attribute: **local_identifier** Optional
attribute: **name** Optional
attribute: **object_length** Optional
attribute: **offset**

- **End** Encoded_Byte_Stream

- **Encoded_Header - occurs 1 to * times**

    description: **The Encoded Header class describes a header that has been encoded using an encoding scheme that is compliant to an external standard.**
    role: **Concrete**
    attribute: **description** Optional
    attribute: **encoding_standard_id** value: **TIFF**
    attribute: **local_identifier** Optional
    attribute: **name** Optional
    attribute: **object_length** Optional
    attribute: **offset**

- **End** Encoded_Header

- **Encoded_Image - occurs 1 to * times**

    description: **The Encoded Image class is used for ancillary images in standard formats, such as JPEG.**
    role: **Concrete**
    attribute: **description** Optional
    attribute: **encoding_standard_id** value: **GIF, J2C, JPEG, PDF, PDF/A, PNG, TIFF**
    attribute: **local_identifier** Optional
    attribute: **name** Optional
    attribute: **object_length** Optional
    attribute: **offset**

- **End** Encoded_Image

- **File occurs 1 times**

    description: **The File class consists of attributes that describe a file in a data store.**
    role: **Concrete**
    attribute: **comment** Optional
    attribute: **creation_date_time** Optional
    attribute: **file_name**
    attribute: **file_size** Optional
    attribute: **local_identifier** Optional
    attribute: **md5_checksum** Optional
    attribute: **records** Optional

- **End** File

- **Header - occurs 1 to * times**

    description: **The Header class describes a data object header.**
    role: **Concrete**
    attribute: **description** Optional
    attribute: **local_identifier** Optional
    attribute: **name** Optional
    attribute: **object_length**
    attribute: **offset**
    attribute: **parsing_standard_id** value: **7-Bit ASCII Text, CDF 3.4 ISTP/IACG, FITS 3.0, ISIS2, ISIS3, PDS DSV 1, PDS ODL 2, PDS3, Pre-PDS3, UTF-8 Text, VICAR1, VICAR2**

- **End** Header

- **Parsable_Byte_Stream - occurs 1 to * times**

    description: **The Parsable Byte Stream class defines byte streams that have standard parsing rules.**

The Parsable Byte Stream class is the parent class for all parsable byte streams.
role: **Concrete**
attribute: **description** ^{Optional}
attribute: **local_identifier** ^{Optional}
attribute: **name** ^{Optional}
attribute: **object_length** ^{Optional}
attribute: **offset**
attribute: **parsing_standard_id**

- **End** Parsable_Byte_Stream

- **Stream_Text - occurs 1 to * times**

  description: **The Stream text class defines a text object.**
  role: **Concrete**
  attribute: **description** ^{Optional}
  attribute: **local_identifier** ^{Optional}
  attribute: **name** ^{Optional}
  attribute: **object_length** ^{Optional}
  attribute: **offset**
  attribute: **parsing_standard_id**
  attribute: **record_delimiter** value: **carriage-return line-feed**

- **End** Stream_Text

- **Table_Binary - occurs 1 to * times**

  description: **The Table Binary class is an extension of table base and defines a simple binary table.**
  role: **Concrete**
  attribute: **description** ^{Optional}
  attribute: **local_identifier** ^{Optional}
  attribute: **name** ^{Optional}
  attribute: **offset**
  attribute: **record_delimiter** ^{Optional}
  attribute: **records**

    - **Record_Binary occurs 1 times**

      description: **The Record_Binary class is a component of the table class and defines a record of the table.**
      role: **Concrete**
      attribute: **fields**
      attribute: **groups**
      attribute: **record_length**

        - **Field_Binary - occurs 1 to * times**

          description: **The Field_Binary class defines a field of a binary record or a field of a binary group.**
          role: **Concrete**
          attribute: **data_type** value: **ASCII_AnyURI, ASCII_Boolean, ASCII_DOI, ASCII_Date, ASCII_Date_DOY, ASCII_Date_Time, ASCII_Date_Time_DOY, ASCII_Date_Time_UTC, ASCII_Date_Time_YMD, ASCII_Date_YMD, ASCII_Directory_Path_Name, ASCII_File_Name, ASCII_File_Specification_Name, ASCII_Integer, ASCII_LID, ASCII_LIDVID, ASCII_LIDVID_LID, ASCII_MD5_Checksum, ASCII_NonNegative_Integer, ASCII_Numeric_Base16, ASCII_Numeric_Base2, ASCII_Numeric_Base8, ASCII_Real, ASCII_String, ASCII_Time, ASCII_VID, ComplexLSB16, ComplexLSB8, ComplexMSB16, ComplexMSB8, IEEE754LSBDouble, IEEE754LSBSingle, IEEE754MSBDouble, IEEE754MSBSingle, SignedBitString, SignedByte, SignedLSB2, SignedLSB4, SignedLSB8, SignedMSB2, SignedMSB4, SignedMSB8, UTF8_String, UnsignedBitString, UnsignedByte, UnsignedLSB2, UnsignedLSB4, UnsignedLSB8, UnsignedMSB2, UnsignedMSB4, UnsignedMSB8**
          attribute: **description** ^{Optional}
          attribute: **field_format** ^{Optional}
          attribute: **field_length**
          attribute: **field_location**
          attribute: **field_number** ^{Optional}
          attribute: **name**
          attribute: **scaling_factor** ^{Optional}
          attribute: **unit** ^{Optional}
          attribute: **value_offset** ^{Optional}

- **Field_Statistics - occurs 0 to 1 times**

  description: **The Field Statistics class provides a set of metrics for a column formed by a field in a repeating record.**
  role: **Concrete**
  attribute: **description** Optional
  attribute: **local_identifier** Optional
  attribute: **maximum** Optional
  attribute: **mean** Optional
  attribute: **median** Optional
  attribute: **minimum** Optional
  attribute: **standard_deviation** Optional

- **End** Field_Statistics

- **Packed_Data_Fields - occurs 0 to 1 times**

  description: **The Packed_Data_Fields class contains field definitions for extracting packed data from the associated byte string field.**
  role: **Concrete**
  attribute: **bit_fields**
  attribute: **description** Optional

  - **Field_Bit - occurs 1 to * times**

    description: **The Field_Bit class provides parameters for extracting one field out of a string of bytes which contains packed data (that is, data values either smaller than a single byte, or crossing byte boundaries, or both.**
    role: **Concrete**
    attribute: **data_type** value: **SignedBitString, UnsignedBitString**
    attribute: **description** Optional
    attribute: **field_format** Optional
    attribute: **field_number** Optional
    attribute: **name**
    attribute: **scaling_factor** Optional
    attribute: **start_bit**
    attribute: **stop_bit**
    attribute: **unit** Optional
    attribute: **value_offset** Optional

    - **Special_Constants - occurs 0 to 1 times**

      description: **The Special Constants class provides a set of values used to indicate special cases that occur in the data.**
      role: **Concrete**
      attribute: **error_constant** Optional
      attribute: **high_instrument_saturation** value: **-32765, 255, 3, 65534, FF7FFFFE, FFFCFFFF** Optional
      attribute: **high_representation_saturation** value: **-32764, 255, 4, 65535, FF7FFFFF, FFFBFFFF** Optional
      attribute: **invalid_constant** Optional
      attribute: **low_instrument_saturation** value: **-32766, 0, 2, FF7FFFFD, FFFDFFFF** Optional
      attribute: **low_representation_saturation** value: **-32767, 1, 16#FF7FFFFC#, 16#FFFEFFFF#** Optional
      attribute: **missing_constant** Optional
      attribute: **not_applicable_constant** Optional
      attribute: **saturated_constant** Optional
      attribute: **unknown_constant** Optional
      attribute: **valid_maximum** value: **254, 32767, 65522** Optional
      attribute: **valid_minimum** value: **-32752, 1, 3, 5, FF7FFFFA, FFEFFFFF** Optional

      - **End** Special_Constants
    - **End** Field_Bit
  - **End** Packed_Data_Fields

- **Special_Constants - occurs 0 to 1 times**

  description: **The Special Constants class provides a set of values used to**

indicate special cases that occur in the data.
role: **Concrete**
attribute: **error_constant** ^{Optional}
attribute: **high_instrument_saturation** value: **-32765, 255, 3, 65534, FF7FFFFE, FFFCFFFF** ^{Optional}
attribute: **high_representation_saturation** value: **-32764, 255, 4, 65535, FF7FFFFF, FFFBFFFF** ^{Optional}
attribute: **invalid_constant** ^{Optional}
attribute: **low_instrument_saturation** value: **-32766, 0, 2, FF7FFFFD, FFFDFFFF** ^{Optional}
attribute: **low_representation_saturation** value: **-32767, 1, 16#FF7FFFFC#, 16#FFFEFFFF#** ^{Optional}
attribute: **missing_constant** ^{Optional}
attribute: **not_applicable_constant** ^{Optional}
attribute: **saturated_constant** ^{Optional}
attribute: **unknown_constant** ^{Optional}
attribute: **valid_maximum** value: **254, 32767, 65522** ^{Optional}
attribute: **valid_minimum** value: **-32752, 1, 3, 5, FF7FFFFA, FFEFFFFF** ^{Optional}

- **End** Special_Constants
- **End** Field_Binary

- **Group_Field_Binary - occurs 1 to * times**

  description: **The Group_Field_Binary class allows a group of table fields.**
  role: **Concrete**
  attribute: **fields**
  attribute: **group_length**
  attribute: **group_location**
  attribute: **group_number** ^{Optional}
  attribute: **groups**
  attribute: **repetitions**

  - **Field_Binary - occurs 1 to * times**

    description: **The Field_Binary class defines a field of a binary record or a field of a binary group.**
    role: **Concrete**
    attribute: **data_type** value: **ASCII_AnyURI, ASCII_Boolean, ASCII_DOI, ASCII_Date, ASCII_Date_DOY, ASCII_Date_Time, ASCII_Date_Time_DOY, ASCII_Date_Time_UTC, ASCII_Date_Time_YMD, ASCII_Date_YMD, ASCII_Directory_Path_Name, ASCII_File_Name, ASCII_File_Specification_Name, ASCII_Integer, ASCII_LID, ASCII_LIDVID, ASCII_LIDVID_LID, ASCII_MD5_Checksum, ASCII_NonNegative_Integer, ASCII_Numeric_Base16, ASCII_Numeric_Base2, ASCII_Numeric_Base8, ASCII_Real, ASCII_String, ASCII_Time, ASCII_VID, ComplexLSB16, ComplexLSB8, ComplexMSB16, ComplexMSB8, IEEE754LSBDouble, IEEE754LSBSingle, IEEE754MSBDouble, IEEE754MSBSingle, SignedBitString, SignedByte, SignedLSB2, SignedLSB4, SignedLSB8, SignedMSB2, SignedMSB4, SignedMSB8, UTF8_String, UnsignedBitString, UnsignedByte, UnsignedLSB2, UnsignedLSB4, UnsignedLSB8, UnsignedMSB2, UnsignedMSB4, UnsignedMSB8**
    attribute: **description** ^{Optional}
    attribute: **field_format** ^{Optional}
    attribute: **field_length**
    attribute: **field_location**
    attribute: **field_number** ^{Optional}
    attribute: **name**
    attribute: **scaling_factor** ^{Optional}
    attribute: **unit** ^{Optional}
    attribute: **value_offset** ^{Optional}

    - **Field_Statistics - occurs 0 to 1 times**

      description: **The Field Statistics class provides a set of metrics for a column formed by a field in a repeating record.**
      role: **Concrete**
      attribute: **description** ^{Optional}
      attribute: **local_identifier** ^{Optional}
      attribute: **maximum** ^{Optional}
      attribute: **mean** ^{Optional}
      attribute: **median** ^{Optional}

- attribute: **minimum** ^{Optional}
- attribute: **standard_deviation** ^{Optional}

- **End** Field_Statistics

- **Packed_Data_Fields - occurs 0 to 1 times**

  description: **The Packed_Data_Fields class contains field definitions for extracting packed data from the associated byte string field.**
  role: **Concrete**
  attribute: **bit_fields**
  attribute: **description** ^{Optional}

  - **Field_Bit - occurs 1 to * times**

    description: **The Field_Bit class provides parameters for extracting one field out of a string of bytes which contains packed data (that is, data values either smaller than a single byte, or crossing byte boundaries, or both.**
    role: **Concrete**
    attribute: **data_type** value: **SignedBitString, UnsignedBitString**
    attribute: **description** ^{Optional}
    attribute: **field_format** ^{Optional}
    attribute: **field_number** ^{Optional}
    attribute: **name**
    attribute: **scaling_factor** ^{Optional}
    attribute: **start_bit**
    attribute: **stop_bit**
    attribute: **unit** ^{Optional}
    attribute: **value_offset** ^{Optional}

    - **Special_Constants - occurs 0 to 1 times**

      description: **The Special Constants class provides a set of values used to indicate special cases that occur in the data.**
      role: **Concrete**
      attribute: **error_constant** ^{Optional}
      attribute: **high_instrument_saturation** value: **-32765, 255, 3, 65534, FF7FFFFE, FFFCFFFF** ^{Optional}
      attribute: **high_representation_saturation** value: **-32764, 255, 4, 65535, FF7FFFFF, FFFBFFFF** ^{Optional}
      attribute: **invalid_constant** ^{Optional}
      attribute: **low_instrument_saturation** value: **-32766, 0, 2, FF7FFFFD, FFFDFFFF** ^{Optional}
      attribute: **low_representation_saturation** value: **-32767, 1, 16#FF7FFFFC#, 16#FFFEFFFF#** ^{Optional}
      attribute: **missing_constant** ^{Optional}
      attribute: **not_applicable_constant** ^{Optional}
      attribute: **saturated_constant** ^{Optional}
      attribute: **unknown_constant** ^{Optional}
      attribute: **valid_maximum** value: **254, 32767, 65522** ^{Optional}
      attribute: **valid_minimum** value: **-32752, 1, 3, 5, FF7FFFFA, FFEFFFFF** ^{Optional}

      - **End** Special_Constants
    - **End** Field_Bit
- **End** Packed_Data_Fields

- **Special_Constants - occurs 0 to 1 times**

  description: **The Special Constants class provides a set of values used to indicate special cases that occur in the data.**
  role: **Concrete**
  attribute: **error_constant** ^{Optional}
  attribute: **high_instrument_saturation** value: **-32765, 255, 3, 65534, FF7FFFFE, FFFCFFFF** ^{Optional}
  attribute: **high_representation_saturation** value: **-32764, 255, 4, 65535, FF7FFFFF, FFFBFFFF** ^{Optional}
  attribute: **invalid_constant** ^{Optional}

- attribute: **low_instrument_saturation** value: **-32766, 0, 2, FF7FFFFD, FFFDFFFF** ^{Optional}
- attribute: **low_representation_saturation** value: **-32767, 1, 16#FF7FFFFC#, 16#FFFEFFFF#** ^{Optional}
- attribute: **missing_constant** ^{Optional}
- attribute: **not_applicable_constant** ^{Optional}
- attribute: **saturated_constant** ^{Optional}
- attribute: **unknown_constant** ^{Optional}
- attribute: **valid_maximum** value: **254, 32767, 65522** ^{Optional}
- attribute: **valid_minimum** value: **-32752, 1, 3, 5, FF7FFFFA, FFEFFFFF** ^{Optional}

- **End** Special_Constants
- **End** Field_Binary
- **End** Group_Field_Binary
- **End** Record_Binary

- **Uniformly_Sampled - occurs 0 to 1 times**

    description: **The Uniformly_Sampled class provides parameters for a uniformly sampled table.**
    role: **Concrete**
    attribute: **first_sampling_parameter_value**
    attribute: **last_sampling_parameter_value**
    attribute: **sampling_parameter_interval**
    attribute: **sampling_parameter_name**
    attribute: **sampling_parameter_scale** value: **Exponential, Linear, Logarithmic** ^{Optional}
    attribute: **sampling_parameter_unit**

    - **End** Uniformly_Sampled
- **End** Table_Binary

- **Table_Character - occurs 1 to * times**

    description: **The Table Character class is an extension of table base and defines a simple character table.**
    role: **Concrete**
    attribute: **description** ^{Optional}
    attribute: **local_identifier** ^{Optional}
    attribute: **name** ^{Optional}
    attribute: **offset**
    attribute: **record_delimiter** value: **carriage-return line-feed**
    attribute: **records**

    - **Record_Character occurs 1 times**

        description: **The Record_Character class is a component of the table class and defines a record of the table.**
        role: **Concrete**
        attribute: **fields**
        attribute: **groups**
        attribute: **record_length**

        - **Field_Character - occurs 1 to * times**

            description: **The Field_Character class defines a field of a character record or a field of a character group.**
            role: **Concrete**
            attribute: **data_type** value: **ASCII_AnyURI, ASCII_Boolean, ASCII_DOI, ASCII_Date, ASCII_Date_DOY, ASCII_Date_Time, ASCII_Date_Time_DOY, ASCII_Date_Time_UTC, ASCII_Date_Time_YMD, ASCII_Date_YMD, ASCII_Directory_Path_Name, ASCII_File_Name, ASCII_File_Specification_Name, ASCII_Integer, ASCII_LID, ASCII_LIDVID, ASCII_LIDVID_LID, ASCII_MD5_Checksum, ASCII_NonNegative_Integer, ASCII_Numeric_Base16, ASCII_Numeric_Base2, ASCII_Numeric_Base8, ASCII_Real, ASCII_String, ASCII_Time, ASCII_VID, UTF8_String**
            attribute: **description** ^{Optional}
            attribute: **field_format** ^{Optional}
            attribute: **field_length**
            attribute: **field_location**
            attribute: **field_number** ^{Optional}
            attribute: **name**
            attribute: **scaling_factor** ^{Optional}

attribute: **unit** ^{Optional}
attribute: **value_offset** ^{Optional}

- **Field_Statistics - occurs 0 to 1 times**

  description: **The Field Statistics class provides a set of metrics for a column formed by a field in a repeating record.**
  role: **Concrete**
  attribute: **description** ^{Optional}
  attribute: **local_identifier** ^{Optional}
  attribute: **maximum** ^{Optional}
  attribute: **mean** ^{Optional}
  attribute: **median** ^{Optional}
  attribute: **minimum** ^{Optional}
  attribute: **standard_deviation** ^{Optional}

- **End** Field_Statistics

- **Special_Constants - occurs 0 to 1 times**

  description: **The Special Constants class provides a set of values used to indicate special cases that occur in the data.**
  role: **Concrete**
  attribute: **error_constant** ^{Optional}
  attribute: **high_instrument_saturation** value: **-32765, 255, 3, 65534, FF7FFFFE, FFFCFFFF** ^{Optional}
  attribute: **high_representation_saturation** value: **-32764, 255, 4, 65535, FF7FFFFF, FFFBFFFF** ^{Optional}
  attribute: **invalid_constant** ^{Optional}
  attribute: **low_instrument_saturation** value: **-32766, 0, 2, FF7FFFFD, FFFDFFFF** ^{Optional}
  attribute: **low_representation_saturation** value: **-32767, 1, 16#FF7FFFFC#, 16#FFFEFFFF#** ^{Optional}
  attribute: **missing_constant** ^{Optional}
  attribute: **not_applicable_constant** ^{Optional}
  attribute: **saturated_constant** ^{Optional}
  attribute: **unknown_constant** ^{Optional}
  attribute: **valid_maximum** value: **254, 32767, 65522** ^{Optional}
  attribute: **valid_minimum** value: **-32752, 1, 3, 5, FF7FFFFA, FFEFFFFF** ^{Optional}

  - **End** Special_Constants
- **End** Field_Character

- **Group_Field_Character - occurs 1 to * times**

  description: **The Group_Field_Character class allows a group of table fields.**
  role: **Concrete**
  attribute: **fields**
  attribute: **group_length**
  attribute: **group_location**
  attribute: **group_number** ^{Optional}
  attribute: **groups**
  attribute: **repetitions**

  - **Field_Character - occurs 1 to * times**

    description: **The Field_Character class defines a field of a character record or a field of a character group.**
    role: **Concrete**
    attribute: **data_type** value: **ASCII_AnyURI, ASCII_Boolean, ASCII_DOI, ASCII_Date, ASCII_Date_DOY, ASCII_Date_Time, ASCII_Date_Time_DOY, ASCII_Date_Time_UTC, ASCII_Date_Time_YMD, ASCII_Date_YMD, ASCII_Directory_Path_Name, ASCII_File_Name, ASCII_File_Specification_Name, ASCII_Integer, ASCII_LID, ASCII_LIDVID, ASCII_LIDVID_LID, ASCII_MD5_Checksum, ASCII_NonNegative_Integer, ASCII_Numeric_Base16, ASCII_Numeric_Base2, ASCII_Numeric_Base8, ASCII_Real, ASCII_String, ASCII_Time, ASCII_VID, UTF8_String**
    attribute: **description** ^{Optional}
    attribute: **field_format** ^{Optional}
    attribute: **field_length**
    attribute: **field_location**
    attribute: **field_number** ^{Optional}

attribute: **name**
attribute: **scaling_factor** ^{Optional}
attribute: **unit** ^{Optional}
attribute: **value_offset** ^{Optional}

- **Field_Statistics - occurs 0 to 1 times**

  description: **The Field Statistics class provides a set of metrics for a column formed by a field in a repeating record.**
  role: **Concrete**
  attribute: **description** ^{Optional}
  attribute: **local_identifier** ^{Optional}
  attribute: **maximum** ^{Optional}
  attribute: **mean** ^{Optional}
  attribute: **median** ^{Optional}
  attribute: **minimum** ^{Optional}
  attribute: **standard_deviation** ^{Optional}

- **End** Field_Statistics

- **Special_Constants - occurs 0 to 1 times**

  description: **The Special Constants class provides a set of values used to indicate special cases that occur in the data.**
  role: **Concrete**
  attribute: **error_constant** ^{Optional}
  attribute: **high_instrument_saturation** value: **-32765, 255, 3, 65534, FF7FFFFE, FFFCFFFF** ^{Optional}
  attribute: **high_representation_saturation** value: **-32764, 255, 4, 65535, FF7FFFFF, FFFBFFFF** ^{Optional}
  attribute: **invalid_constant** ^{Optional}
  attribute: **low_instrument_saturation** value: **-32766, 0, 2, FF7FFFFD, FFFDFFFF** ^{Optional}
  attribute: **low_representation_saturation** value: **-32767, 1, 16#FF7FFFFC#, 16#FFFEFFFF#** ^{Optional}
  attribute: **missing_constant** ^{Optional}
  attribute: **not_applicable_constant** ^{Optional}
  attribute: **saturated_constant** ^{Optional}
  attribute: **unknown_constant** ^{Optional}
  attribute: **valid_maximum** value: **254, 32767, 65522** ^{Optional}
  attribute: **valid_minimum** value: **-32752, 1, 3, 5, FF7FFFFA, FFEFFFFF** ^{Optional}

- **End** Special_Constants
- **End** Field_Character
- **End** Group_Field_Character
- **End** Record_Character

- **Uniformly_Sampled - occurs 0 to 1 times**

  description: **The Uniformly_Sampled class provides parameters for a uniformly sampled table.**
  role: **Concrete**
  attribute: **first_sampling_parameter_value**
  attribute: **last_sampling_parameter_value**
  attribute: **sampling_parameter_interval**
  attribute: **sampling_parameter_name**
  attribute: **sampling_parameter_scale** value: **Exponential, Linear, Logarithmic** ^{Optional}
  attribute: **sampling_parameter_unit**

- **End** Uniformly_Sampled
- **End** Table_Character

- **Table_Delimited - occurs 1 to * times**

  description: **The Table_Delimited class defines a simple table (spreadsheet) with delimited fields and records.**
  role: **Concrete**
  attribute: **description** ^{Optional}
  attribute: **field_delimiter** value: **comma, horizontal tab, semicolon, vertical bar**
  attribute: **local_identifier** ^{Optional}
  attribute: **name** ^{Optional}

attribute: **object_length** ^{Optional}
attribute: **offset**
attribute: **parsing_standard_id** value: **PDS DSV 1**
attribute: **record_delimiter** value: **carriage-return line-feed**
attribute: **records**

- **Record_Delimited occurs 1 times**

  description: **The Record_Delimited class is a component of the delimited table (spreadsheet) class and defines a record of the delimited table.**
  role: **Concrete**
  attribute: **fields**
  attribute: **groups**
  attribute: **maximum_record_length** ^{Optional}

  - **Field_Delimited - occurs 1 to * times**

    description: **The Field_Delimited class defines a field of a delimited record or a field of a delimited group.**
    role: **Concrete**
    attribute: **data_type** value: **ASCII_AnyURI, ASCII_Boolean, ASCII_DOI, ASCII_Date, ASCII_Date_DOY, ASCII_Date_Time, ASCII_Date_Time_DOY, ASCII_Date_Time_UTC, ASCII_Date_Time_YMD, ASCII_Date_YMD, ASCII_Directory_Path_Name, ASCII_File_Name, ASCII_File_Specification_Name, ASCII_Integer, ASCII_LID, ASCII_LIDVID, ASCII_LIDVID_LID, ASCII_MD5_Checksum, ASCII_NonNegative_Integer, ASCII_Numeric_Base16, ASCII_Numeric_Base2, ASCII_Numeric_Base8, ASCII_Real, ASCII_String, ASCII_Time, ASCII_VID, UTF8_String**
    attribute: **description** ^{Optional}
    attribute: **field_format** ^{Optional}
    attribute: **field_number** ^{Optional}
    attribute: **maximum_field_length** ^{Optional}
    attribute: **name**
    attribute: **scaling_factor** ^{Optional}
    attribute: **unit** ^{Optional}
    attribute: **value_offset** ^{Optional}

    - **Field_Statistics - occurs 0 to 1 times**

      description: **The Field Statistics class provides a set of metrics for a column formed by a field in a repeating record.**
      role: **Concrete**
      attribute: **description** ^{Optional}
      attribute: **local_identifier** ^{Optional}
      attribute: **maximum** ^{Optional}
      attribute: **mean** ^{Optional}
      attribute: **median** ^{Optional}
      attribute: **minimum** ^{Optional}
      attribute: **standard_deviation** ^{Optional}

    - **End** Field_Statistics

    - **Special_Constants - occurs 0 to 1 times**

      description: **The Special Constants class provides a set of values used to indicate special cases that occur in the data.**
      role: **Concrete**
      attribute: **error_constant** ^{Optional}
      attribute: **high_instrument_saturation** value: **-32765, 255, 3, 65534, FF7FFFFE, FFFCFFFF** ^{Optional}
      attribute: **high_representation_saturation** value: **-32764, 255, 4, 65535, FF7FFFFF, FFFBFFFF** ^{Optional}
      attribute: **invalid_constant** ^{Optional}
      attribute: **low_instrument_saturation** value: **-32766, 0, 2, FF7FFFFD, FFFDFFFF** ^{Optional}
      attribute: **low_representation_saturation** value: **-32767, 1, 16#FF7FFFFC#, 16#FFFEFFFF#** ^{Optional}
      attribute: **missing_constant** ^{Optional}
      attribute: **not_applicable_constant** ^{Optional}
      attribute: **saturated_constant** ^{Optional}
      attribute: **unknown_constant** ^{Optional}

attribute: **valid_maximum** value: **254, 32767, 65522** ^{Optional}
attribute: **valid_minimum** value: **-32752, 1, 3, 5, FF7FFFFA, FFEFFFFF** ^{Optional}

- **End** Special_Constants
- **End** Field_Delimited

- **Group_Field_Delimited - occurs 1 to * times**

  description: **The Field_Group_Delimited class allows a group of delimited fields.**
  role: **Concrete**
  attribute: **fields**
  attribute: **group_number** ^{Optional}
  attribute: **groups**
  attribute: **repetitions**

  - **Field_Delimited - occurs 1 to * times**

    description: **The Field_Delimited class defines a field of a delimited record or a field of a delimited group.**
    role: **Concrete**
    attribute: **data_type** value: **ASCII_AnyURI, ASCII_Boolean, ASCII_DOI, ASCII_Date, ASCII_Date_DOY, ASCII_Date_Time, ASCII_Date_Time_DOY, ASCII_Date_Time_UTC, ASCII_Date_Time_YMD, ASCII_Date_YMD, ASCII_Directory_Path_Name, ASCII_File_Name, ASCII_File_Specification_Name, ASCII_Integer, ASCII_LID, ASCII_LIDVID, ASCII_LIDVID_LID, ASCII_MD5_Checksum, ASCII_NonNegative_Integer, ASCII_Numeric_Base16, ASCII_Numeric_Base2, ASCII_Numeric_Base8, ASCII_Real, ASCII_String, ASCII_Time, ASCII_VID, UTF8_String**
    attribute: **description** ^{Optional}
    attribute: **field_format** ^{Optional}
    attribute: **field_number** ^{Optional}
    attribute: **maximum_field_length** ^{Optional}
    attribute: **name**
    attribute: **scaling_factor** ^{Optional}
    attribute: **unit** ^{Optional}
    attribute: **value_offset** ^{Optional}

    - **Field_Statistics - occurs 0 to 1 times**

      description: **The Field Statistics class provides a set of metrics for a column formed by a field in a repeating record.**
      role: **Concrete**
      attribute: **description** ^{Optional}
      attribute: **local_identifier** ^{Optional}
      attribute: **maximum** ^{Optional}
      attribute: **mean** ^{Optional}
      attribute: **median** ^{Optional}
      attribute: **minimum** ^{Optional}
      attribute: **standard_deviation** ^{Optional}

    - **End** Field_Statistics

    - **Special_Constants - occurs 0 to 1 times**

      description: **The Special Constants class provides a set of values used to indicate special cases that occur in the data.**
      role: **Concrete**
      attribute: **error_constant** ^{Optional}
      attribute: **high_instrument_saturation** value: **-32765, 255, 3, 65534, FF7FFFFE, FFFCFFFF** ^{Optional}
      attribute: **high_representation_saturation** value: **-32764, 255, 4, 65535, FF7FFFFF, FFFBFFFF** ^{Optional}
      attribute: **invalid_constant** ^{Optional}
      attribute: **low_instrument_saturation** value: **-32766, 0, 2, FF7FFFFD, FFFDFFFF** ^{Optional}
      attribute: **low_representation_saturation** value: **-32767, 1, 16#FF7FFFFC#, 16#FFFEFFFF#** ^{Optional}
      attribute: **missing_constant** ^{Optional}
      attribute: **not_applicable_constant** ^{Optional}
      attribute: **saturated_constant** ^{Optional}
      attribute: **unknown_constant** ^{Optional}

attribute: **valid_maximum** value: **254, 32767, 65522** ^{Optional}
attribute: **valid_minimum** value: **-32752, 1, 3, 5, FF7FFFFA, FFEFFFFF** ^{Optional}

- **End** Special_Constants
- **End** Field_Delimited
- **End** Group_Field_Delimited
- **End** Record_Delimited

- **Uniformly_Sampled - occurs 0 to 1 times**

  description: **The Uniformly_Sampled class provides parameters for a uniformly sampled table.**
  role: **Concrete**
  attribute: **first_sampling_parameter_value**
  attribute: **last_sampling_parameter_value**
  attribute: **sampling_parameter_interval**
  attribute: **sampling_parameter_name**
  attribute: **sampling_parameter_scale** value: **Exponential, Linear, Logarithmic** ^{Optional}
  attribute: **sampling_parameter_unit**

  - **End** Uniformly_Sampled
- **End** Table_Delimited
- **End** File_Area_Observational_Supplemental

- **Identification_Area occurs 1 times**

  description: **The identification area consists of attributes that identify and name an object.**
  role: **Concrete**
  attribute: **information_model_version** value: **1.1.0.1**
  attribute: **logical_identifier**
  attribute: **product_class** value: **Product_Observational**
  attribute: **title**
  attribute: **version_id**

  - **Alias_List - occurs 0 to 1 times**

    description: **The Alias_List class provides a list of paired alternate names and identifications for this product in this or some other archive or data system.**
    role: **Concrete**

    - **Alias - occurs 1 to * times**

      description: **The Alias class provides a single alternate name and identification for this product in this or some other archive or data system.**
      role: **Concrete**
      attribute: **alternate_id** ^{Optional}
      attribute: **alternate_title** ^{Optional}
      attribute: **comment** ^{Optional}

    - **End** Alias
  - **End** Alias_List

  - **Citation_Information - occurs 0 to 1 times**

    description: **The Citation_Information class provides specific fields often used in citing the product in journal articles, abstract services, and other reference contexts.**
    role: **Concrete**
    attribute: **author_list** ^{Optional}
    attribute: **description**
    attribute: **editor_list** ^{Optional}
    attribute: **keyword** ^{Optional}
    attribute: **publication_year**

  - **End** Citation_Information

  - **Modification_History - occurs 0 to 1 times**

    description: **The Modification_History class tracks the history of changes made to the product once it enters the registry system.**
    role: **Concrete**

    - **Modification_Detail - occurs 1 to * times**

description: **The Modification_Detail class provides the details of one round of modification for the product. The first, required, instance of this class documents the date the product was first registered.**
role: **Concrete**
attribute: **description**
attribute: **modification_date**
attribute: **version_id**

- **End** Modification_Detail
- **End** Modification_History
- **End** Identification_Area

- **Observation_Area occurs 1 times**

description: **The observation area consists of attributes that provide information about the circumstances under which the data were collected.**
role: **Concrete**
attribute: **comment** Optional

- **Discipline_Area - occurs 0 to 1 times**

    description: **The Discipline area allows the insertion of discipline specific metadata.**
    role: **Concrete**

- **End** Discipline_Area

- **Investigation_Area - occurs 1 to * times**

    description: **The Investigation_Area class provides information about an investigation (mission, observing campaign or other coordinated, large-scale data collection effort).**
    role: **Concrete**
    attribute: **name**
    attribute: **type** value: **Individual Investigation, Mission, Observing Campaign, Other Investigation**

    - **Internal_Reference - occurs 1 to * times**

        description: **The Internal_Reference class is used to cross-reference other products in the PDS registry system.**
        role: **Concrete**
        attribute: **comment** Optional
        attribute: **lid_reference** Optional
        attribute: **lidvid_reference** Optional
        attribute: **reference_type**

    - **End** Internal_Reference
- **End** Investigation_Area

- **Mission_Area - occurs 0 to 1 times**

    description: **The mission area allows the insertion of mission specific metadata.**
    role: **Concrete**

- **End** Mission_Area

- **Observing_System - occurs 1 to * times**

    description: **The Observing System class describes the entire suite used to collect the data.**
    role: **Concrete**
    attribute: **description** Optional
    attribute: **name** Optional

    - **Observing_System_Component - occurs 1 to * times**

        description: **The Observing System Component class references one or more subsystems used to collect data. A subsystem can be an instrument_host, instrument, or any other similar product. Each subsystem is categorized as either a sensor or a source. If the observing system includes both a sensor and a source, Observing System Component occurs twice (once for each type) otherwise it only occurs once.**
        role: **Concrete**
        attribute: **description** Optional
        attribute: **name**
        attribute: **type** value: **Artificial Illumination, Instrument, Laboratory, Literature Search, Naked Eye, Observatory, Spacecraft, Telescope**

- **External_Reference - occurs 0 to * times**

  description: **The External_Reference class is used to reference a source outside the PDS registry system.**
  role: **Concrete**
  attribute: **description** ^{Optional}
  attribute: **doi** ^{Optional}
  attribute: **reference_text**

- **End** External_Reference

- **Internal_Reference - occurs 0 to 1 times**

  description: **The Internal_Reference class is used to cross-reference other products in the PDS registry system.**
  role: **Concrete**
  attribute: **comment** ^{Optional}
  attribute: **lid_reference** ^{Optional}
  attribute: **lidvid_reference** ^{Optional}
  attribute: **reference_type**

  - **End** Internal_Reference
- **End** Observing_System_Component
- **End** Observing_System

- **Primary_Result_Summary - occurs 0 to 1 times**

  description: **The Primary_Result_Summary class provides a high-level description of the types of products included in the collection or bundle**
  role: **Concrete**
  attribute: **data_regime** value: **Dust, Electric Field, Electrons, Far Infrared, Gamma Ray, Infrared, Ions, Magnetic Field, Microwave, Millimeter, Near Infrared, Particles, Pressure, Radio, Sub-Millimeter, Temperature, Ultraviolet, Visible, X-Ray** ^{Optional}
  attribute: **description** ^{Optional}
  attribute: **processing_level** value: **Calibrated, Derived, Partially Processed, Raw, Telemetry**
  attribute: **processing_level_id** value: **Calibrated, Derived, Partially Processed, Raw, Telemetry** ^{Optional}
  attribute: **purpose** value: **Calibration, Checkout, Engineering, Navigation, Science**
  attribute: **type** value: **Altimetry, Astrometry, Count, E/B-Field Vectors, Gravity Model, Image, Lightcurves, Map, Meteorology, Null Result, Occultation, Photometry, Physical Parameters, Polarimetry, Radiometry, Reference, Shape Model, Spectrum** ^{Optional}

  - **Science_Facets - occurs 0 to * times**

    description: **The Science_Facets class contains the science-related search facets. It is optional and may be repeated if an product has facets related to, for example, two different disciplines (as defined by the discipline_name facet). Note that Science_Facets was modeled with Discipline_Facets as a component and Discipline_Facets was modeled with Group_Facet1 and Group_Facet2 as components. This dependency hierarchy was flattened and only Science_Facets exists in the schema.**
    role: **Concrete**
    attribute: **domain** value: **Atmosphere, Heliosphere, Interior, Interstellar, Ionosphere, Magnetosphere, Surface** ^{Optional}
    attribute: **wavelength_range** value: **Far Infrared, Gamma Ray, Infrared, Microwave, Millimeter, Near Infrared, Radio, Submillimeter, Ultraviolet, Visible, X-ray** ^{Optional}

    - **Discipline_Facets occurs 1 times**

      description: **The Discipline_Facets class contains the discipline-related search facets. It is required and may not be repeated. Note that Science_Facets was modeled with Discipline_Facets as a component and Discipline_Facets was modeled with Group_Facet1 and Group_Facet2 as components. This dependency hierarchy was flattened and only Science_Facets exists in the schema.**
      role: **Concrete**
      attribute: **discipline_name** value: **Atmospheres, Fields, Flux Measurements, Imaging, Particles, Ring-Moon Systems, Small Bodies, Spectroscopy**

      - **Group_Facet1 - occurs 0 to * times**

        description: **The Group_Facet1 class contains a single facet restricted according to the value of discipline_name. It also contains zero or more subfacets restricted according to the value of the facet. Note that Science_Facets was modeled with Discipline_Facets as a component and Discipline_Facets was modeled with Group_Facet1 and Group_Facet2 as**

components. This dependency hierarchy was flattened and only Science_Facets exists in the schema.
role: **Concrete**
attribute: **facet1** value: **2D, Color, Color Movie, Dust Study, Dynamical Properties, Electric, Electrons, Gas Study, Grayscale, Historical Reference, Ions, Lightcurve, Linear, Magnetic, Meteoritics, Meteorology, Movie, Neutrals, Photometry, Physical Properties, Polarimetry, Production Rates, Ring Compositional Map, Ring Occultation Profile, Ring Thermal Map, Satellite Astrometry, Shape Model, Spectral Cube, Spectral Image, Structure, Tabulated, Taxonomy** Optional
attribute: **subfacet1** Optional

- **End** Group_Facet1

- **Group_Facet2 - occurs 0 to * times**

  description: **The Group_Facet2 class contains a single facet restricted according to the value of discipline_name. It also contains zero or more subfacets restricted according to the value of the facet. Note that Science_Facets was modeled with Discipline_Facets as a component and Discipline_Facets was modeled with Group_Facet1 and Group_Facet2 as components. This dependency hierarchy was flattened and only Science_Facets exists in the schema.**
  role: **Concrete**
  attribute: **facet2** value: **Background, Cosmic Ray, Energetic, Plasma, Solar Energetic, Waves** Optional
  attribute: **subfacet2** Optional

    - **End** Group_Facet2
  - **End** Discipline_Facets
- **End** Science_Facets
- **End** Primary_Result_Summary

- **Target_Identification - occurs 1 to * times**

  description: **The Target_Identification class provides detailed target identification information.**
  role: **Concrete**
  attribute: **alternate_designation** Optional
  attribute: **description** Optional
  attribute: **name**
  attribute: **type** value: **Asteroid, Comet, Dust, Dwarf Planet, Galaxy, Globular Cluster, Meteorite, Meteoroid, Meteoroid Stream, Nebula, Open Cluster, Planet, Planetary Nebula, Planetary System, Plasma Cloud, Ring, Satellite, Star, Star Cluster, Sun, Terrestrial Sample, Trans-Neptunian Object**

  - **Internal_Reference - occurs 0 to 1 times**

    description: **The Internal_Reference class is used to cross-reference other products in the PDS registry system.**
    role: **Concrete**
    attribute: **comment** Optional
    attribute: **lid_reference** Optional
    attribute: **lidvid_reference** Optional
    attribute: **reference_type**

    - **End** Internal_Reference
- **End** Target_Identification

- **Time_Coordinates occurs 1 times**

  description: **The Time_Coordinates class provides a list of time coordinates.**
  role: **Concrete**
  attribute: **local_mean_solar_time** Optional
  attribute: **local_true_solar_time** Optional
  attribute: **solar_longitude** Optional
  attribute: **start_date_time**
  attribute: **stop_date_time**

  - **End** Time_Coordinates
- **End** Observation_Area

- **Reference_List - occurs 0 to 1 times**

  description: **The Reference_List class provides lists general references and cross-references for the product. References cited elsewhere in the label need not be repeated here.**

role: **Concrete**

- **External_Reference - occurs 0 to * times**

  description: **The External_Reference class is used to reference a source outside the PDS registry system.**
  role: **Concrete**
  attribute: **description** Optional
  attribute: **doi** Optional
  attribute: **reference_text**

- **End** External_Reference

- **Internal_Reference - occurs 0 to * times**

  description: **The Internal_Reference class is used to cross-reference other products in the PDS registry system.**
  role: **Concrete**
  attribute: **comment** Optional
  attribute: **lid_reference** Optional
  attribute: **lidvid_reference** Optional
  attribute: **reference_type**

- **End** Internal_Reference
- **End** Reference_List
- **End** Product_Observational

- **Product_Proxy_PDS3**

  description: **The Product Proxy PDS3 class defines a product with enough information to register a PDS3 data product.**
  role: **Concrete**

  - **File_Area_Binary - occurs 1 to * times**

    description: **The File Area Binary class describes a file that contains an encoded byte stream.**
    role: **Concrete**

    - **Encoded_Binary - occurs 0 to * times**

      description: **The Encoded Binary class describes a binary encoded byte stream. This class is used to describe files in the repository that are being registered using Product_File_Repository.**
      role: **Concrete**
      attribute: **description** Optional
      attribute: **encoding_standard_id** value: **CCSDS Communication Protocols**
      attribute: **local_identifier** Optional
      attribute: **name** Optional
      attribute: **object_length** Optional
      attribute: **offset**

    - **End** Encoded_Binary

    - **File occurs 1 times**

      description: **The File class consists of attributes that describe a file in a data store.**
      role: **Concrete**
      attribute: **comment** Optional
      attribute: **creation_date_time** Optional
      attribute: **file_name**
      attribute: **file_size** Optional
      attribute: **local_identifier** Optional
      attribute: **md5_checksum** Optional
      attribute: **records** Optional

    - **End** File
  - **End** File_Area_Binary

  - **Identification_Area occurs 1 times**

    description: **The identification area consists of attributes that identify and name an object.**

role: **Concrete**
attribute: **information_model_version** value: **1.1.0.1**
attribute: **logical_identifier**
attribute: **product_class** value: **Product_Proxy_PDS3**
attribute: **title**
attribute: **version_id**

- **Alias_List - occurs 0 to 1 times**

  description: **The Alias_List class provides a list of paired alternate names and identifications for this product in this or some other archive or data system.**
  role: **Concrete**

  - **Alias - occurs 1 to * times**

    description: **The Alias class provides a single alternate name and identification for this product in this or some other archive or data system.**
    role: **Concrete**
    attribute: **alternate_id** Optional
    attribute: **alternate_title** Optional
    attribute: **comment** Optional

    - **End** Alias
- **End** Alias_List

- **Citation_Information - occurs 0 to 1 times**

  description: **The Citation_Information class provides specific fields often used in citing the product in journal articles, abstract services, and other reference contexts.**
  role: **Concrete**
  attribute: **author_list** Optional
  attribute: **description**
  attribute: **editor_list** Optional
  attribute: **keyword** Optional
  attribute: **publication_year**

- **End** Citation_Information

- **Modification_History - occurs 0 to 1 times**

  description: **The Modification_History class tracks the history of changes made to the product once it enters the registry system.**
  role: **Concrete**

  - **Modification_Detail - occurs 1 to * times**

    description: **The Modification_Detail class provides the details of one round of modification for the product. The first, required, instance of this class documents the date the product was first registered.**
    role: **Concrete**
    attribute: **description**
    attribute: **modification_date**
    attribute: **version_id**

    - **End** Modification_Detail
  - **End** Modification_History
- **End** Identification_Area

- **Reference_List - occurs 0 to 1 times**

  description: **The Reference_List class provides lists general references and cross-references for the product. References cited elsewhere in the label need not be repeated here.**
  role: **Concrete**

  - **External_Reference - occurs 0 to * times**

    description: **The External_Reference class is used to reference a source outside the PDS registry system.**
    role: **Concrete**
    attribute: **description** Optional
    attribute: **doi** Optional
    attribute: **reference_text**

- **End** External_Reference

- **Internal_Reference - occurs 0 to * times**

  description: **The Internal_Reference class is used to cross-reference other products in the PDS registry system.**
  role: **Concrete**
  attribute: **comment** ^{Optional}
  attribute: **lid_reference** ^{Optional}
  attribute: **lidvid_reference** ^{Optional}
  attribute: **reference_type**

  - **End** Internal_Reference
- **End** Reference_List
- **End** Product_Proxy_PDS3

- **Product_Service**

  description: **The Product Service class defines a product for registering services. Service descriptions from this product are used to register services as intrinsic registry objects.**
  role: **Concrete**

  - **File_Area_Service_Description - occurs 0 to * times**

    description: **The File Area Service Description class describes a file that contains a service description.**
    role: **Concrete**

    - **File occurs 1 times**

      description: **The File class consists of attributes that describe a file in a data store.**
      role: **Concrete**
      attribute: **comment** ^{Optional}
      attribute: **creation_date_time** ^{Optional}
      attribute: **file_name**
      attribute: **file_size** ^{Optional}
      attribute: **local_identifier** ^{Optional}
      attribute: **md5_checksum** ^{Optional}
      attribute: **records** ^{Optional}

    - **End** File

    - **Service_Description - occurs 1 to * times**

      description: **The Service Description class defines a file that contains a standardized service specification.**
      role: **Concrete**
      attribute: **description** ^{Optional}
      attribute: **local_identifier** ^{Optional}
      attribute: **name** ^{Optional}
      attribute: **object_length** ^{Optional}
      attribute: **offset**
      attribute: **parsing_standard_id** value: **WADL, WSDL 2.n**

    - **End** Service_Description
  - **End** File_Area_Service_Description

  - **Identification_Area occurs 1 times**

    description: **The identification area consists of attributes that identify and name an object.**
    role: **Concrete**
    attribute: **information_model_version** value: **1.1.0.1**
    attribute: **logical_identifier**
    attribute: **product_class** value: **Product_Service**
    attribute: **title**
    attribute: **version_id**

    - **Alias_List - occurs 0 to 1 times**

      description: **The Alias_List class provides a list of paired alternate names and identifications for this product in this or some other archive or data system.**
      role: **Concrete**

- **Alias - occurs 1 to * times**

  description: **The Alias class provides a single alternate name and identification for this product in this or some other archive or data system.**
  role: **Concrete**
  attribute: **alternate_id** Optional
  attribute: **alternate_title** Optional
  attribute: **comment** Optional

  - **End** Alias
- **End** Alias_List

- **Citation_Information - occurs 0 to 1 times**

  description: **The Citation_Information class provides specific fields often used in citing the product in journal articles, abstract services, and other reference contexts.**
  role: **Concrete**
  attribute: **author_list** Optional
  attribute: **description**
  attribute: **editor_list** Optional
  attribute: **keyword** Optional
  attribute: **publication_year**

- **End** Citation_Information

- **Modification_History - occurs 0 to 1 times**

  description: **The Modification_History class tracks the history of changes made to the product once it enters the registry system.**
  role: **Concrete**

  - **Modification_Detail - occurs 1 to * times**

    description: **The Modification_Detail class provides the details of one round of modification for the product. The first, required, instance of this class documents the date the product was first registered.**
    role: **Concrete**
    attribute: **description**
    attribute: **modification_date**
    attribute: **version_id**

  - **End** Modification_Detail
- **End** Modification_History
- **End** Identification_Area

- **Reference_List - occurs 0 to 1 times**

description: **The Reference_List class provides lists general references and cross-references for the product. References cited elsewhere in the label need not be repeated here.**
role: **Concrete**

  - **External_Reference - occurs 0 to * times**

    description: **The External_Reference class is used to reference a source outside the PDS registry system.**
    role: **Concrete**
    attribute: **description** Optional
    attribute: **doi** Optional
    attribute: **reference_text**

  - **End** External_Reference

  - **Internal_Reference - occurs 0 to * times**

    description: **The Internal_Reference class is used to cross-reference other products in the PDS registry system.**
    role: **Concrete**
    attribute: **comment** Optional
    attribute: **lid_reference** Optional
    attribute: **lidvid_reference** Optional
    attribute: **reference_type**

- **End** Internal_Reference
- **End** Reference_List
- **End** Product_Service

- ## Product_SIP

  description: **The Product SIP class defines a product for the Submission Information Package.**
  role: **Concrete**

  - ### Identification_Area occurs 1 times

    description: **The identification area consists of attributes that identify and name an object.**
    role: **Concrete**
    attribute: **information_model_version** value: **1.1.0.1**
    attribute: **logical_identifier**
    attribute: **product_class** value: **Product_SIP**
    attribute: **title**
    attribute: **version_id**

    - #### Alias_List - occurs 0 to 1 times

      description: **The Alias_List class provides a list of paired alternate names and identifications for this product in this or some other archive or data system.**
      role: **Concrete**

      - ##### Alias - occurs 1 to * times

        description: **The Alias class provides a single alternate name and identification for this product in this or some other archive or data system.**
        role: **Concrete**
        attribute: **alternate_id** Optional
        attribute: **alternate_title** Optional
        attribute: **comment** Optional

      - **End** Alias
    - **End** Alias_List

    - #### Citation_Information - occurs 0 to 1 times

      description: **The Citation_Information class provides specific fields often used in citing the product in journal articles, abstract services, and other reference contexts.**
      role: **Concrete**
      attribute: **author_list** Optional
      attribute: **description**
      attribute: **editor_list** Optional
      attribute: **keyword** Optional
      attribute: **publication_year**

    - **End** Citation_Information

    - #### Modification_History - occurs 0 to 1 times

      description: **The Modification_History class tracks the history of changes made to the product once it enters the registry system.**
      role: **Concrete**

      - ##### Modification_Detail - occurs 1 to * times

        description: **The Modification_Detail class provides the details of one round of modification for the product. The first, required, instance of this class documents the date the product was first registered.**
        role: **Concrete**
        attribute: **description**
        attribute: **modification_date**
        attribute: **version_id**

      - **End** Modification_Detail
    - **End** Modification_History
  - **End** Identification_Area

  - ### Information_Package_Component - occurs 1 to * times

description: **The Information_Package_Component class associates a Bundle, Collections or Basic Products with Checksum and Storage Manifests.**
role: **Concrete**
attribute: **checksum_manifest_checksum** Optional
attribute: **checksum_type** Optional
attribute: **transfer_manifest_checksum** Optional

- **File_Area_Checksum_Manifest - occurs 0 to 1 times**

  description: **The File Area Checksum Manifest class describes a file that contains a two column table for file references and checksums.**
  role: **Concrete**

  - **Checksum_Manifest occurs 1 times**

    description: **The Checksum_Manifest class defines a two column table for file references and checksums. The table structure is compatible with the output from an MD5 checksum utility.**
    role: **Concrete**
    attribute: **description** Optional
    attribute: **local_identifier** Optional
    attribute: **name** Optional
    attribute: **object_length** Optional
    attribute: **offset**
    attribute: **parsing_standard_id** value: **MD5Deep 4.n**
    attribute: **record_delimiter** value: **carriage-return line-feed**

  - **End** Checksum_Manifest

  - **File occurs 1 times**

    description: **The File class consists of attributes that describe a file in a data store.**
    role: **Concrete**
    attribute: **comment** Optional
    attribute: **creation_date_time** Optional
    attribute: **file_name**
    attribute: **file_size** Optional
    attribute: **local_identifier** Optional
    attribute: **md5_checksum** Optional
    attribute: **records** Optional

  - **End** File
- **End** File_Area_Checksum_Manifest

- **File_Area_Transfer_Manifest - occurs 0 to 1 times**

  description: **The File Area Transfer Manifest class describes a file that contains a two column table that maps the logical identifiers and version ids of products to their file specification names.**
  role: **Concrete**

  - **File occurs 1 times**

    description: **The File class consists of attributes that describe a file in a data store.**
    role: **Concrete**
    attribute: **comment** Optional
    attribute: **creation_date_time** Optional
    attribute: **file_name**
    attribute: **file_size** Optional
    attribute: **local_identifier** Optional
    attribute: **md5_checksum** Optional
    attribute: **records** Optional

  - **End** File

  - **Transfer_Manifest occurs 1 times - Base_Class:Table_Base**

    description: **The Transfer_Manifest class defines a table that maps product LIDVIDs to the file_specificaition_names of the products' XML label files.**
    role: **Concrete**
    attribute: **description** Optional
    attribute: **local_identifier** Optional

attribute: **name** ^{Optional}
attribute: **offset**
attribute: **record_delimiter** value: **carriage-return line-feed**
attribute: **records**

- **Record_Character occurs 1 times**

  description: **The Record_Character class is a component of the table class and defines a record of the table.**
  role: **Concrete**
  attribute: **fields**
  attribute: **groups**
  attribute: **record_length**

  - **Field_Character - occurs 1 to * times**

    description: **The Field_Character class defines a field of a character record or a field of a character group.**
    role: **Concrete**
    attribute: **data_type** value: **ASCII_AnyURI, ASCII_Boolean, ASCII_DOI, ASCII_Date, ASCII_Date_DOY, ASCII_Date_Time, ASCII_Date_Time_DOY, ASCII_Date_Time_UTC, ASCII_Date_Time_YMD, ASCII_Date_YMD, ASCII_Directory_Path_Name, ASCII_File_Name, ASCII_File_Specification_Name, ASCII_Integer, ASCII_LID, ASCII_LIDVID, ASCII_LIDVID_LID, ASCII_MD5_Checksum, ASCII_NonNegative_Integer, ASCII_Numeric_Base16, ASCII_Numeric_Base2, ASCII_Numeric_Base8, ASCII_Real, ASCII_String, ASCII_Time, ASCII_VID, UTF8_String**
    attribute: **description** ^{Optional}
    attribute: **field_format** ^{Optional}
    attribute: **field_length**
    attribute: **field_location**
    attribute: **field_number** ^{Optional}
    attribute: **name**
    attribute: **scaling_factor** ^{Optional}
    attribute: **unit** ^{Optional}
    attribute: **value_offset** ^{Optional}

    - **Field_Statistics - occurs 0 to 1 times**

      description: **The Field Statistics class provides a set of metrics for a column formed by a field in a repeating record.**
      role: **Concrete**
      attribute: **description** ^{Optional}
      attribute: **local_identifier** ^{Optional}
      attribute: **maximum** ^{Optional}
      attribute: **mean** ^{Optional}
      attribute: **median** ^{Optional}
      attribute: **minimum** ^{Optional}
      attribute: **standard_deviation** ^{Optional}

    - **End** Field_Statistics

    - **Special_Constants - occurs 0 to 1 times**

      description: **The Special Constants class provides a set of values used to indicate special cases that occur in the data.**
      role: **Concrete**
      attribute: **error_constant** ^{Optional}
      attribute: **high_instrument_saturation** value: **-32765, 255, 3, 65534, FF7FFFFE, FFFCFFFF** ^{Optional}
      attribute: **high_representation_saturation** value: **-32764, 255, 4, 65535, FF7FFFFF, FFFBFFFF** ^{Optional}
      attribute: **invalid_constant** ^{Optional}
      attribute: **low_instrument_saturation** value: **-32766, 0, 2, FF7FFFFD, FFFDFFFF** ^{Optional}
      attribute: **low_representation_saturation** value: **-32767, 1, 16#FF7FFFFC#, 16#FFFEFFFF#** ^{Optional}
      attribute: **missing_constant** ^{Optional}
      attribute: **not_applicable_constant** ^{Optional}
      attribute: **saturated_constant** ^{Optional}
      attribute: **unknown_constant** ^{Optional}
      attribute: **valid_maximum** value: **254, 32767, 65522** ^{Optional}

attribute: **valid_minimum** value: **-32752, 1, 3, 5, FF7FFFFA, FFEFFFFF**
Optional

- **End** Special_Constants
- **End** Field_Character

- **Group_Field_Character - occurs 1 to * times**

  description: **The Group_Field_Character class allows a group of table fields.**
  role: **Concrete**
  attribute: **fields**
  attribute: **group_length**
  attribute: **group_location**
  attribute: **group_number** Optional
  attribute: **groups**
  attribute: **repetitions**

  - **Field_Character - occurs 1 to * times**

    description: **The Field_Character class defines a field of a character record or a field of a character group.**
    role: **Concrete**
    attribute: **data_type** value: **ASCII_AnyURI, ASCII_Boolean, ASCII_DOI, ASCII_Date, ASCII_Date_DOY, ASCII_Date_Time, ASCII_Date_Time_DOY, ASCII_Date_Time_UTC, ASCII_Date_Time_YMD, ASCII_Date_YMD, ASCII_Directory_Path_Name, ASCII_File_Name, ASCII_File_Specification_Name, ASCII_Integer, ASCII_LID, ASCII_LIDVID, ASCII_LIDVID_LID, ASCII_MD5_Checksum, ASCII_NonNegative_Integer, ASCII_Numeric_Base16, ASCII_Numeric_Base2, ASCII_Numeric_Base8, ASCII_Real, ASCII_String, ASCII_Time, ASCII_VID, UTF8_String**
    attribute: **description** Optional
    attribute: **field_format** Optional
    attribute: **field_length**
    attribute: **field_location**
    attribute: **field_number** Optional
    attribute: **name**
    attribute: **scaling_factor** Optional
    attribute: **unit** Optional
    attribute: **value_offset** Optional

    - **Field_Statistics - occurs 0 to 1 times**

      description: **The Field Statistics class provides a set of metrics for a column formed by a field in a repeating record.**
      role: **Concrete**
      attribute: **description** Optional
      attribute: **local_identifier** Optional
      attribute: **maximum** Optional
      attribute: **mean** Optional
      attribute: **median** Optional
      attribute: **minimum** Optional
      attribute: **standard_deviation** Optional

    - **End** Field_Statistics

    - **Special_Constants - occurs 0 to 1 times**

      description: **The Special Constants class provides a set of values used to indicate special cases that occur in the data.**
      role: **Concrete**
      attribute: **error_constant** Optional
      attribute: **high_instrument_saturation** value: **-32765, 255, 3, 65534, FF7FFFFE, FFFCFFFF** Optional
      attribute: **high_representation_saturation** value: **-32764, 255, 4, 65535, FF7FFFFF, FFFBFFFF** Optional
      attribute: **invalid_constant** Optional
      attribute: **low_instrument_saturation** value: **-32766, 0, 2, FF7FFFFD, FFFDFFFF** Optional
      attribute: **low_representation_saturation** value: **-32767, 1, 16#FF7FFFFC#, 16#FFFEFFFF#** Optional

attribute: **missing_constant** ^{Optional}

attribute: **not_applicable_constant** ^{Optional}

attribute: **saturated_constant** ^{Optional}

attribute: **unknown_constant** ^{Optional}

attribute: **valid_maximum** value: **254, 32767, 65522** ^{Optional}

attribute: **valid_minimum** value: **-32752, 1, 3, 5, FF7FFFFA, FFEFFFFF** ^{Optional}

- **End** Special_Constants
- **End** Field_Character
- **End** Group_Field_Character
- **End** Record_Character

- **Uniformly_Sampled - occurs 0 to 1 times**

  description: **The Uniformly_Sampled class provides parameters for a uniformly sampled table.**
  role: **Concrete**
  attribute: **first_sampling_parameter_value**
  attribute: **last_sampling_parameter_value**
  attribute: **sampling_parameter_interval**
  attribute: **sampling_parameter_name**
  attribute: **sampling_parameter_scale** value: **Exponential, Linear, Logarithmic** ^{Optional}
  attribute: **sampling_parameter_unit**

  - **End** Uniformly_Sampled
- **End** Transfer_Manifest
- **End** File_Area_Transfer_Manifest

- **Internal_Reference - occurs 1 to * times**

  description: **The Internal_Reference class is used to cross-reference other products in the PDS registry system.**
  role: **Concrete**
  attribute: **comment** ^{Optional}
  attribute: **lid_reference** ^{Optional}
  attribute: **lidvid_reference** ^{Optional}
  attribute: **reference_type**

  - **End** Internal_Reference
- **End** Information_Package_Component

- **Reference_List - occurs 0 to 1 times**

description: **The Reference_List class provides lists general references and cross-references for the product. References cited elsewhere in the label need not be repeated here.**
role: **Concrete**

- **External_Reference - occurs 0 to * times**

  description: **The External_Reference class is used to reference a source outside the PDS registry system.**
  role: **Concrete**
  attribute: **description** ^{Optional}
  attribute: **doi** ^{Optional}
  attribute: **reference_text**

  - **End** External_Reference

- **Internal_Reference - occurs 0 to * times**

  description: **The Internal_Reference class is used to cross-reference other products in the PDS registry system.**
  role: **Concrete**
  attribute: **comment** ^{Optional}
  attribute: **lid_reference** ^{Optional}
  attribute: **lidvid_reference** ^{Optional}
  attribute: **reference_type**

  - **End** Internal_Reference
- **End** Reference_List

- **Submission_Information_Package occurs 1 times**

description: **The Submission Information Package (SIP) class is an Information Package that is delivered by a Data Provider to an archive that conforms to the Open Archive Information System (OAIS) Reference Model for use in the construction of one or more AIPs.**
role: **Concrete**
attribute: **description**

- **End** Submission_Information_Package
- **End** Product_SIP

- ## Product_Software

description: **Product Software is a product consisting of a set of one or more software formats.**
role: **Concrete**

- **Identification_Area occurs 1 times**

  description: **The identification area consists of attributes that identify and name an object.**
  role: **Concrete**
  attribute: **information_model_version** value: **1.1.0.1**
  attribute: **logical_identifier**
  attribute: **product_class** value: **Product_Software**
  attribute: **title**
  attribute: **version_id**

  - **Alias_List - occurs 0 to 1 times**

    description: **The Alias_List class provides a list of paired alternate names and identifications for this product in this or some other archive or data system.**
    role: **Concrete**

    - **Alias - occurs 1 to * times**

      description: **The Alias class provides a single alternate name and identification for this product in this or some other archive or data system.**
      role: **Concrete**
      attribute: **alternate_id** Optional
      attribute: **alternate_title** Optional
      attribute: **comment** Optional

    - **End** Alias
  - **End** Alias_List

  - **Citation_Information - occurs 0 to 1 times**

    description: **The Citation_Information class provides specific fields often used in citing the product in journal articles, abstract services, and other reference contexts.**
    role: **Concrete**
    attribute: **author_list** Optional
    attribute: **description**
    attribute: **editor_list** Optional
    attribute: **keyword** Optional
    attribute: **publication_year**

  - **End** Citation_Information

  - **Modification_History - occurs 0 to 1 times**

    description: **The Modification_History class tracks the history of changes made to the product once it enters the registry system.**
    role: **Concrete**

    - **Modification_Detail - occurs 1 to * times**

      description: **The Modification_Detail class provides the details of one round of modification for the product. The first, required, instance of this class documents the date the product was first registered.**
      role: **Concrete**
      attribute: **description**
      attribute: **modification_date**
      attribute: **version_id**

- - - **End** Modification_Detail
  - - **End** Modification_History
- - **End** Identification_Area

- - **Reference_List - occurs 0 to 1 times**

    description: **The Reference_List class provides lists general references and cross-references for the product. References cited elsewhere in the label need not be repeated here.**
    role: **Concrete**

  - - **External_Reference - occurs 0 to * times**

      description: **The External_Reference class is used to reference a source outside the PDS registry system.**
      role: **Concrete**
      attribute: **description** Optional
      attribute: **doi** Optional
      attribute: **reference_text**

    - - **End** External_Reference

    - - **Internal_Reference - occurs 0 to * times**

      description: **The Internal_Reference class is used to cross-reference other products in the PDS registry system.**
      role: **Concrete**
      attribute: **comment** Optional
      attribute: **lid_reference** Optional
      attribute: **lidvid_reference** Optional
      attribute: **reference_type**

    - - **End** Internal_Reference
- - **End** Reference_List

- - **Software occurs 1 times**

    description: **The Software class describes a software product**
    role: **Concrete**
    attribute: **author_list** Optional
    attribute: **description**
    attribute: **name**
    attribute: **programmers_manual_id**
    attribute: **software_id**
    attribute: **software_type**
    attribute: **users_manual_id**
    attribute: **version_id**

- - **End** Software

- - **Software_Binary - occurs 0 to * times**

    description: **The Software Script class provides a description of a software code that is stored as a compiled binary file.**
    role: **Concrete**
    attribute: **files**
    attribute: **os_version**
    attribute: **program_notes_id**
    attribute: **software_format_type**
    attribute: **supported_architecture_note**
    attribute: **supported_operating_system_note**
    attribute: **system_requirements_note**

- - **End** Software_Binary

- - **Software_Script - occurs 0 to * times**

    description: **The Software Script class provides a description of a software code that is stored as a script.**
    role: **Concrete**
    attribute: **files**
    attribute: **install_note**
    attribute: **supported_environment_note**
    attribute: **system_requirements_note**

- - **End** Software_Script

- **Software_Source - occurs 0 to * times**

  description: **The Software Script class provides a description of a software code that is stored as source code.**
  role: **Concrete**
  attribute: **compile_note**
  attribute: **files**
  attribute: **os_version**
  attribute: **program_notes_id**
  attribute: **software_dialect**
  attribute: **software_format_type**
  attribute: **software_language**
  attribute: **supported_architecture_note**
  attribute: **supported_operating_system_note**
  attribute: **system_requirements_note**

  - **End** Software_Source
- **End** Product_Software

- **Product_SPICE_Kernel**

  description: **The Product SPICE Kernel class defines a SPICE kernel product.**
  role: **Concrete**

  - **Context_Area occurs 1 times**

    description: **The Context Area provides context information for a product.**
    role: **Concrete**
    attribute: **comment** Optional

    - **Discipline_Area - occurs 0 to 1 times**

      description: **The Discipline area allows the insertion of discipline specific metadata.**
      role: **Concrete**

      - **End** Discipline_Area

    - **Investigation_Area - occurs 0 to * times**

      description: **The Investigation_Area class provides information about an investigation (mission, observing campaign or other coordinated, large-scale data collection effort).**
      role: **Concrete**
      attribute: **name**
      attribute: **type** value: **Individual Investigation, Mission, Observing Campaign, Other Investigation**

      - **Internal_Reference - occurs 1 to * times**

        description: **The Internal_Reference class is used to cross-reference other products in the PDS registry system.**
        role: **Concrete**
        attribute: **comment** Optional
        attribute: **lid_reference** Optional
        attribute: **lidvid_reference** Optional
        attribute: **reference_type**

      - **End** Internal_Reference
    - **End** Investigation_Area

    - **Mission_Area - occurs 0 to 1 times**

      description: **The mission area allows the insertion of mission specific metadata.**
      role: **Concrete**

      - **End** Mission_Area

    - **Observing_System - occurs 0 to * times**

      description: **The Observing System class describes the entire suite used to collect the data.**
      role: **Concrete**
      attribute: **description** Optional
      attribute: **name** Optional

- **Observing_System_Component - occurs 1 to * times**

  description: **The Observing System Component class references one or more subsystems used to collect data. A subsystem can be an instrument_host, instrument, or any other similar product. Each subsystem is categorized as either a sensor or a source. If the observing system includes both a sensor and a source, Observing System Component occurs twice (once for each type) otherwise it only occurs once.**
  role: **Concrete**
  attribute: **description** Optional
  attribute: **name**
  attribute: **type** value: **Artificial Illumination, Instrument, Laboratory, Literature Search, Naked Eye, Observatory, Spacecraft, Telescope**

  - **External_Reference - occurs 0 to * times**

    description: **The External_Reference class is used to reference a source outside the PDS registry system.**
    role: **Concrete**
    attribute: **description** Optional
    attribute: **doi** Optional
    attribute: **reference_text**

  - **End** External_Reference

  - **Internal_Reference - occurs 0 to 1 times**

    description: **The Internal_Reference class is used to cross-reference other products in the PDS registry system.**
    role: **Concrete**
    attribute: **comment** Optional
    attribute: **lid_reference** Optional
    attribute: **lidvid_reference** Optional
    attribute: **reference_type**

    - **End** Internal_Reference
  - **End** Observing_System_Component
- **End** Observing_System

- **Primary_Result_Summary - occurs 0 to 1 times**

  description: **The Primary_Result_Summary class provides a high-level description of the types of products included in the collection or bundle**
  role: **Concrete**
  attribute: **data_regime** value: **Dust, Electric Field, Electrons, Far Infrared, Gamma Ray, Infrared, Ions, Magnetic Field, Microwave, Millimeter, Near Infrared, Particles, Pressure, Radio, Sub-Millimeter, Temperature, Ultraviolet, Visible, X-Ray** Optional
  attribute: **description** Optional
  attribute: **processing_level** value: **Calibrated, Derived, Partially Processed, Raw, Telemetry**
  attribute: **processing_level_id** value: **Calibrated, Derived, Partially Processed, Raw, Telemetry** Optional
  attribute: **purpose** value: **Calibration, Checkout, Engineering, Navigation, Science**
  attribute: **type** value: **Altimetry, Astrometry, Count, E/B-Field Vectors, Gravity Model, Image, Lightcurves, Map, Meteorology, Null Result, Occultation, Photometry, Physical Parameters, Polarimetry, Radiometry, Reference, Shape Model, Spectrum** Optional

  - **Science_Facets - occurs 0 to * times**

    description: **The Science_Facets class contains the science-related search facets. It is optional and may be repeated if an product has facets related to, for example, two different disciplines (as defined by the discipline_name facet). Note that Science_Facets was modeled with Discipline_Facets as a component and Discipline_Facets was modeled with Group_Facet1 and Group_Facet2 as components. This dependency hierarchy was flattened and only Science_Facets exists in the schema.**
    role: **Concrete**
    attribute: **domain** value: **Atmosphere, Heliosphere, Interior, Interstellar, Ionosphere, Magnetosphere, Surface** Optional
    attribute: **wavelength_range** value: **Far Infrared, Gamma Ray, Infrared, Microwave, Millimeter, Near Infrared, Radio, Submillimeter, Ultraviolet, Visible, X-ray** Optional

    - **Discipline_Facets occurs 1 times**

      description: **The Discipline_Facets class contains the discipline-related search facets. It is required and may not be repeated. Note that Science_Facets was modeled with Discipline_Facets as a component and Discipline_Facets was**

modeled with Group_Facet1 and Group_Facet2 as components. This dependency hierarchy was flattened and only Science_Facets exists in the schema.
role: **Concrete**
attribute: **discipline_name** value: **Atmospheres, Fields, Flux Measurements, Imaging, Particles, Ring-Moon Systems, Small Bodies, Spectroscopy**

- **Group_Facet1 - occurs 0 to * times**

    description: **The Group_Facet1 class contains a single facet restricted according to the value of discipline_name. It also contains zero or more subfacets restricted according to the value of the facet. Note that Science_Facets was modeled with Discipline_Facets as a component and Discipline_Facets was modeled with Group_Facet1 and Group_Facet2 as components. This dependency hierarchy was flattened and only Science_Facets exists in the schema.**
    role: **Concrete**
    attribute: **facet1** value: **2D, Color, Color Movie, Dust Study, Dynamical Properties, Electric, Electrons, Gas Study, Grayscale, Historical Reference, Ions, Lightcurve, Linear, Magnetic, Meteoritics, Meteorology, Movie, Neutrals, Photometry, Physical Properties, Polarimetry, Production Rates, Ring Compositional Map, Ring Occultation Profile, Ring Thermal Map, Satellite Astrometry, Shape Model, Spectral Cube, Spectral Image, Structure, Tabulated, Taxonomy** Optional
    attribute: **subfacet1** Optional

- **End** Group_Facet1

- **Group_Facet2 - occurs 0 to * times**

    description: **The Group_Facet2 class contains a single facet restricted according to the value of discipline_name. It also contains zero or more subfacets restricted according to the value of the facet. Note that Science_Facets was modeled with Discipline_Facets as a component and Discipline_Facets was modeled with Group_Facet1 and Group_Facet2 as components. This dependency hierarchy was flattened and only Science_Facets exists in the schema.**
    role: **Concrete**
    attribute: **facet2** value: **Background, Cosmic Ray, Energetic, Plasma, Solar Energetic, Waves** Optional
    attribute: **subfacet2** Optional

- **End** Group_Facet2
- **End** Discipline_Facets
- **End** Science_Facets
- **End** Primary_Result_Summary

- **Target_Identification - occurs 0 to * times**

    description: **The Target_Identification class provides detailed target identification information.**
    role: **Concrete**
    attribute: **alternate_designation** Optional
    attribute: **description** Optional
    attribute: **name**
    attribute: **type** value: **Asteroid, Comet, Dust, Dwarf Planet, Galaxy, Globular Cluster, Meteorite, Meteoroid, Meteoroid Stream, Nebula, Open Cluster, Planet, Planetary Nebula, Planetary System, Plasma Cloud, Ring, Satellite, Star, Star Cluster, Sun, Terrestrial Sample, Trans-Neptunian Object**

    - **Internal_Reference - occurs 0 to 1 times**

        description: **The Internal_Reference class is used to cross-reference other products in the PDS registry system.**
        role: **Concrete**
        attribute: **comment** Optional
        attribute: **lid_reference** Optional
        attribute: **lidvid_reference** Optional
        attribute: **reference_type**

    - **End** Internal_Reference
- **End** Target_Identification

- **Time_Coordinates - occurs 0 to 1 times**

    description: **The Time_Coordinates class provides a list of time coordinates.**
    role: **Concrete**

- attribute: **local_mean_solar_time** ^{Optional}
- attribute: **local_true_solar_time** ^{Optional}
- attribute: **solar_longitude** ^{Optional}
- attribute: **start_date_time**
- attribute: **stop_date_time**

- **End** Time_Coordinates
- **End** Context_Area

- **File_Area_SPICE_Kernel occurs 1 times**

  description: **The File Area SPICE Kernel class describes a file that contains a SPICE Kernel object.**
  role: **Concrete**

  - **File occurs 1 times**

    description: **The File class consists of attributes that describe a file in a data store.**
    role: **Concrete**
    attribute: **comment** ^{Optional}
    attribute: **creation_date_time** ^{Optional}
    attribute: **file_name**
    attribute: **file_size** ^{Optional}
    attribute: **local_identifier** ^{Optional}
    attribute: **md5_checksum** ^{Optional}
    attribute: **records** ^{Optional}

  - **End** File

  - **SPICE_Kernel occurs 1 times**

    description: **The SPICE Kernel class describes a SPICE object.**
    role: **Concrete**
    attribute: **description** ^{Optional}
    attribute: **encoding_type** value: **Binary, Character**
    attribute: **kernel_type** value: **CK, DBK, DSK, EK, FK, IK, LSK, MK, PCK, SCLK, SPK**
    attribute: **local_identifier** ^{Optional}
    attribute: **name** ^{Optional}
    attribute: **object_length** ^{Optional}
    attribute: **offset**
    attribute: **parsing_standard_id** value: **SPICE**

  - **End** SPICE_Kernel
- **End** File_Area_SPICE_Kernel

- **Identification_Area occurs 1 times**

  description: **The identification area consists of attributes that identify and name an object.**
  role: **Concrete**
  attribute: **information_model_version** value: **1.1.0.1**
  attribute: **logical_identifier**
  attribute: **product_class** value: **Product_SPICE_Kernel**
  attribute: **title**
  attribute: **version_id**

  - **Alias_List - occurs 0 to 1 times**

    description: **The Alias_List class provides a list of paired alternate names and identifications for this product in this or some other archive or data system.**
    role: **Concrete**

    - **Alias - occurs 1 to * times**

      description: **The Alias class provides a single alternate name and identification for this product in this or some other archive or data system.**
      role: **Concrete**
      attribute: **alternate_id** ^{Optional}
      attribute: **alternate_title** ^{Optional}
      attribute: **comment** ^{Optional}

    - **End** Alias
  - **End** Alias_List

- **Citation_Information - occurs 0 to 1 times**

    description: **The Citation_Information class provides specific fields often used in citing the product in journal articles, abstract services, and other reference contexts.**
    role: **Concrete**
    attribute: **author_list** Optional
    attribute: **description**
    attribute: **editor_list** Optional
    attribute: **keyword** Optional
    attribute: **publication_year**

- **End** Citation_Information

- **Modification_History - occurs 0 to 1 times**

    description: **The Modification_History class tracks the history of changes made to the product once it enters the registry system.**
    role: **Concrete**

    - **Modification_Detail - occurs 1 to * times**

        description: **The Modification_Detail class provides the details of one round of modification for the product. The first, required, instance of this class documents the date the product was first registered.**
        role: **Concrete**
        attribute: **description**
        attribute: **modification_date**
        attribute: **version_id**

    - **End** Modification_Detail
- **End** Modification_History
- **End** Identification_Area

- **Reference_List - occurs 0 to 1 times**

    description: **The Reference_List class provides lists general references and cross-references for the product. References cited elsewhere in the label need not be repeated here.**
    role: **Concrete**

    - **External_Reference - occurs 0 to * times**

        description: **The External_Reference class is used to reference a source outside the PDS registry system.**
        role: **Concrete**
        attribute: **description** Optional
        attribute: **doi** Optional
        attribute: **reference_text**

    - **End** External_Reference

    - **Internal_Reference - occurs 0 to * times**

        description: **The Internal_Reference class is used to cross-reference other products in the PDS registry system.**
        role: **Concrete**
        attribute: **comment** Optional
        attribute: **lid_reference** Optional
        attribute: **lidvid_reference** Optional
        attribute: **reference_type**

    - **End** Internal_Reference
- **End** Reference_List
- **End** Product_SPICE_Kernel

- **Product_Subscription_PDS3**

    description: **The Product_Subscription_PDS3 class provides the list of subscriptions for a PDS3 subscriber.**
    role: **Concrete**

    - **Identification_Area occurs 1 times**

description: **The identification area consists of attributes that identify and name an object.**
role: **Concrete**
attribute: **information_model_version** value: **1.1.0.1**
attribute: **logical_identifier**
attribute: **product_class** value: **Product_Subscription_PDS3**
attribute: **title**
attribute: **version_id**

- **Alias_List - occurs 0 to 1 times**

  description: **The Alias_List class provides a list of paired alternate names and identifications for this product in this or some other archive or data system.**
  role: **Concrete**

  - **Alias - occurs 1 to * times**

    description: **The Alias class provides a single alternate name and identification for this product in this or some other archive or data system.**
    role: **Concrete**
    attribute: **alternate_id** Optional
    attribute: **alternate_title** Optional
    attribute: **comment** Optional

    - **End** Alias
- **End** Alias_List

- **Citation_Information - occurs 0 to 1 times**

  description: **The Citation_Information class provides specific fields often used in citing the product in journal articles, abstract services, and other reference contexts.**
  role: **Concrete**
  attribute: **author_list** Optional
  attribute: **description**
  attribute: **editor_list** Optional
  attribute: **keyword** Optional
  attribute: **publication_year**

- **End** Citation_Information

- **Modification_History - occurs 0 to 1 times**

  description: **The Modification_History class tracks the history of changes made to the product once it enters the registry system.**
  role: **Concrete**

  - **Modification_Detail - occurs 1 to * times**

    description: **The Modification_Detail class provides the details of one round of modification for the product. The first, required, instance of this class documents the date the product was first registered.**
    role: **Concrete**
    attribute: **description**
    attribute: **modification_date**
    attribute: **version_id**

    - **End** Modification_Detail
  - **End** Modification_History
- **End** Identification_Area

- **Reference_List - occurs 0 to 1 times**

  description: **The Reference_List class provides lists general references and cross-references for the product. References cited elsewhere in the label need not be repeated here.**
  role: **Concrete**

  - **External_Reference - occurs 0 to * times**

    description: **The External_Reference class is used to reference a source outside the PDS registry system.**
    role: **Concrete**
    attribute: **description** Optional
    attribute: **doi** Optional
    attribute: **reference_text**

- **End** External_Reference

- **Internal_Reference - occurs 0 to * times**

  description: **The Internal_Reference class is used to cross-reference other products in the PDS registry system.**
  role: **Concrete**
  attribute: **comment** Optional
  attribute: **lid_reference** Optional
  attribute: **lidvid_reference** Optional
  attribute: **reference_type**

  - **End** Internal_Reference
- **End** Reference_List

- **Subscriber_PDS3 occurs 1 times**

  description: **The Subscriber PDS3 class provides the name of the subscriber and their subscription list.**
  role: **Concrete**
  attribute: **full_name**
  attribute: **local_identifier** Optional
  attribute: **subscription_id**

  - **End** Subscriber_PDS3
- **End** Product_Subscription_PDS3

- **Product_Target_PDS3**

  description: **A target product describes a target. This product captures a reduced set of the PDS3 catalog target information.**
  role: **Concrete**

  - **Identification_Area occurs 1 times**

    description: **The identification area consists of attributes that identify and name an object.**
    role: **Concrete**
    attribute: **information_model_version** value: **1.1.0.1**
    attribute: **logical_identifier**
    attribute: **product_class** value: **Product_Target_PDS3**
    attribute: **title**
    attribute: **version_id**

    - **Alias_List - occurs 0 to 1 times**

      description: **The Alias_List class provides a list of paired alternate names and identifications for this product in this or some other archive or data system.**
      role: **Concrete**

      - **Alias - occurs 1 to * times**

        description: **The Alias class provides a single alternate name and identification for this product in this or some other archive or data system.**
        role: **Concrete**
        attribute: **alternate_id** Optional
        attribute: **alternate_title** Optional
        attribute: **comment** Optional

        - **End** Alias
    - **End** Alias_List

    - **Citation_Information - occurs 0 to 1 times**

      description: **The Citation_Information class provides specific fields often used in citing the product in journal articles, abstract services, and other reference contexts.**
      role: **Concrete**
      attribute: **author_list** Optional
      attribute: **description**
      attribute: **editor_list** Optional
      attribute: **keyword** Optional
      attribute: **publication_year**

- **End** Citation_Information

- **Modification_History - occurs 0 to 1 times**

  description: **The Modification_History class tracks the history of changes made to the product once it enters the registry system.**
  role: **Concrete**

  - **Modification_Detail - occurs 1 to * times**

    description: **The Modification_Detail class provides the details of one round of modification for the product. The first, required, instance of this class documents the date the product was first registered.**
    role: **Concrete**
    attribute: **description**
    attribute: **modification_date**
    attribute: **version_id**

    - **End** Modification_Detail
  - **End** Modification_History
- **End** Identification_Area

- **Reference_List - occurs 0 to 1 times**

  description: **The Reference_List class provides lists general references and cross-references for the product. References cited elsewhere in the label need not be repeated here.**
  role: **Concrete**

  - **External_Reference - occurs 0 to * times**

    description: **The External_Reference class is used to reference a source outside the PDS registry system.**
    role: **Concrete**
    attribute: **description** Optional
    attribute: **doi** Optional
    attribute: **reference_text**

    - **End** External_Reference

  - **Internal_Reference - occurs 0 to * times**

    description: **The Internal_Reference class is used to cross-reference other products in the PDS registry system.**
    role: **Concrete**
    attribute: **comment** Optional
    attribute: **lid_reference** Optional
    attribute: **lidvid_reference** Optional
    attribute: **reference_type**

    - **End** Internal_Reference
  - **End** Reference_List

- **Target_PDS3 occurs 1 times**

  description: **The Target class provides a description of a phyiscal object that is the object of data collection. This class captures the PDS3 catalog Target information.**
  role: **Concrete**
  attribute: **orbit_direction** Optional
  attribute: **primary_body_name**
  attribute: **rotation_direction** Optional
  attribute: **target_desc**
  attribute: **target_name**
  attribute: **target_type**

  - **End** Target_PDS3
- **End** Product_Target_PDS3

- # **Product_Thumbnail**

  description: **The Product Thumbnail class defines a product consisting of one encoded byte stream digital object.**
  role: **Concrete**

- **File_Area_Encoded_Image occurs 1 times**

  description: **The File Area Encoded Image class describes a file that contains an Encoded Image object.**
  role: **Concrete**

  - **Encoded_Image occurs 1 times**

    description: **The Encoded Image class is used for ancillary images in standard formats, such as JPEG.**
    role: **Concrete**
    attribute: **description** ^{Optional}
    attribute: **encoding_standard_id** value: **GIF, J2C, JPEG, PDF, PDF/A, PNG, TIFF**
    attribute: **local_identifier** ^{Optional}
    attribute: **name** ^{Optional}
    attribute: **object_length** ^{Optional}
    attribute: **offset**

  - **End** Encoded_Image

  - **File occurs 1 times**

    description: **The File class consists of attributes that describe a file in a data store.**
    role: **Concrete**
    attribute: **comment** ^{Optional}
    attribute: **creation_date_time** ^{Optional}
    attribute: **file_name**
    attribute: **file_size** ^{Optional}
    attribute: **local_identifier** ^{Optional}
    attribute: **md5_checksum** ^{Optional}
    attribute: **records** ^{Optional}

    - **End** File
- **End** File_Area_Encoded_Image

- **Identification_Area occurs 1 times**

  description: **The identification area consists of attributes that identify and name an object.**
  role: **Concrete**
  attribute: **information_model_version** value: **1.1.0.1**
  attribute: **logical_identifier**
  attribute: **product_class** value: **Product_Thumbnail**
  attribute: **title**
  attribute: **version_id**

  - **Alias_List - occurs 0 to 1 times**

    description: **The Alias_List class provides a list of paired alternate names and identifications for this product in this or some other archive or data system.**
    role: **Concrete**

    - **Alias - occurs 1 to * times**

      description: **The Alias class provides a single alternate name and identification for this product in this or some other archive or data system.**
      role: **Concrete**
      attribute: **alternate_id** ^{Optional}
      attribute: **alternate_title** ^{Optional}
      attribute: **comment** ^{Optional}

    - **End** Alias
  - **End** Alias_List

  - **Citation_Information - occurs 0 to 1 times**

    description: **The Citation_Information class provides specific fields often used in citing the product in journal articles, abstract services, and other reference contexts.**
    role: **Concrete**
    attribute: **author_list** ^{Optional}
    attribute: **description**
    attribute: **editor_list** ^{Optional}
    attribute: **keyword** ^{Optional}
    attribute: **publication_year**

- **End** Citation_Information

- **Modification_History - occurs 0 to 1 times**

  description: **The Modification_History class tracks the history of changes made to the product once it enters the registry system.**
  role: **Concrete**

    - **Modification_Detail - occurs 1 to * times**

      description: **The Modification_Detail class provides the details of one round of modification for the product. The first, required, instance of this class documents the date the product was first registered.**
      role: **Concrete**
      attribute: **description**
      attribute: **modification_date**
      attribute: **version_id**

      - **End** Modification_Detail
  - **End** Modification_History
- **End** Identification_Area

- **Reference_List - occurs 0 to 1 times**

  description: **The Reference_List class provides lists general references and cross-references for the product. References cited elsewhere in the label need not be repeated here.**
  role: **Concrete**

    - **External_Reference - occurs 0 to * times**

      description: **The External_Reference class is used to reference a source outside the PDS registry system.**
      role: **Concrete**
      attribute: **description** Optional
      attribute: **doi** Optional
      attribute: **reference_text**

    - **End** External_Reference

    - **Internal_Reference - occurs 0 to * times**

      description: **The Internal_Reference class is used to cross-reference other products in the PDS registry system.**
      role: **Concrete**
      attribute: **comment** Optional
      attribute: **lid_reference** Optional
      attribute: **lidvid_reference** Optional
      attribute: **reference_type**

    - **End** Internal_Reference
  - **End** Reference_List
- **End** Product_Thumbnail

- **Product_Update**

  description: **The Product Update class defines a product consisting of update information and optional references to other products.**
  role: **Concrete**

    - **Identification_Area occurs 1 times**

      description: **The identification area consists of attributes that identify and name an object.**
      role: **Concrete**
      attribute: **information_model_version** value: **1.1.0.1**
      attribute: **logical_identifier**
      attribute: **product_class** value: **Product_Update**
      attribute: **title**
      attribute: **version_id**

        - **Alias_List - occurs 0 to 1 times**

description: **The Alias_List class provides a list of paired alternate names and identifications for this product in this or some other archive or data system.**
role: **Concrete**

- **Alias - occurs 1 to * times**

  description: **The Alias class provides a single alternate name and identification for this product in this or some other archive or data system.**
  role: **Concrete**
  attribute: **alternate_id** Optional
  attribute: **alternate_title** Optional
  attribute: **comment** Optional

  - **End** Alias
- **End** Alias_List

- **Citation_Information - occurs 0 to 1 times**

  description: **The Citation_Information class provides specific fields often used in citing the product in journal articles, abstract services, and other reference contexts.**
  role: **Concrete**
  attribute: **author_list** Optional
  attribute: **description**
  attribute: **editor_list** Optional
  attribute: **keyword** Optional
  attribute: **publication_year**

- **End** Citation_Information

- **Modification_History - occurs 0 to 1 times**

  description: **The Modification_History class tracks the history of changes made to the product once it enters the registry system.**
  role: **Concrete**

  - **Modification_Detail - occurs 1 to * times**

    description: **The Modification_Detail class provides the details of one round of modification for the product. The first, required, instance of this class documents the date the product was first registered.**
    role: **Concrete**
    attribute: **description**
    attribute: **modification_date**
    attribute: **version_id**

    - **End** Modification_Detail
  - **End** Modification_History
- **End** Identification_Area

- **Reference_List - occurs 0 to 1 times**

  description: **The Reference_List class provides lists general references and cross-references for the product. References cited elsewhere in the label need not be repeated here.**
  role: **Concrete**

  - **External_Reference - occurs 0 to * times**

    description: **The External_Reference class is used to reference a source outside the PDS registry system.**
    role: **Concrete**
    attribute: **description** Optional
    attribute: **doi** Optional
    attribute: **reference_text**

  - **End** External_Reference

  - **Internal_Reference - occurs 0 to * times**

    description: **The Internal_Reference class is used to cross-reference other products in the PDS registry system.**
    role: **Concrete**
    attribute: **comment** Optional
    attribute: **lid_reference** Optional

- attribute: **lidvid_reference** ^{Optional}
- attribute: **reference_type**

  - **End** Internal_Reference
- **End** Reference_List

- **Update occurs 1 times**

  description: **The Update class consists of update information.**
  role: **Concrete**
  attribute: **description** ^{Optional}
  attribute: **local_identifier** ^{Optional}

  - **Update_Entry - occurs 1 to * times**

    description: **The Update Entry class provides the date and description of an update.**
    role: **Concrete**
    attribute: **date_time**
    attribute: **description**
    attribute: **full_name**

    - **Internal_Reference - occurs 0 to 1 times**

      description: **The Internal_Reference class is used to cross-reference other products in the PDS registry system.**
      role: **Concrete**
      attribute: **comment** ^{Optional}
      attribute: **lid_reference** ^{Optional}
      attribute: **lidvid_reference** ^{Optional}
      attribute: **reference_type**

      - **End** Internal_Reference
    - **End** Update_Entry
  - **End** Update
- **End** Product_Update

- **Product_Volume_PDS3**

  description: **A Product Volume PDS3 product captures the PDS3 volume information.**
  role: **Concrete**

  - **Identification_Area occurs 1 times**

    description: **The identification area consists of attributes that identify and name an object.**
    role: **Concrete**
    attribute: **information_model_version** value: **1.1.0.1**
    attribute: **logical_identifier**
    attribute: **product_class** value: **Product_Volume_PDS3**
    attribute: **title**
    attribute: **version_id**

    - **Alias_List - occurs 0 to 1 times**

      description: **The Alias_List class provides a list of paired alternate names and identifications for this product in this or some other archive or data system.**
      role: **Concrete**

      - **Alias - occurs 1 to * times**

        description: **The Alias class provides a single alternate name and identification for this product in this or some other archive or data system.**
        role: **Concrete**
        attribute: **alternate_id** ^{Optional}
        attribute: **alternate_title** ^{Optional}
        attribute: **comment** ^{Optional}

        - **End** Alias
      - **End** Alias_List

    - **Citation_Information - occurs 0 to 1 times**

description: **The Citation_Information class provides specific fields often used in citing the product in journal articles, abstract services, and other reference contexts.**
role: **Concrete**
attribute: **author_list** Optional
attribute: **description**
attribute: **editor_list** Optional
attribute: **keyword** Optional
attribute: **publication_year**

- **End** Citation_Information

- **Modification_History - occurs 0 to 1 times**

  description: **The Modification_History class tracks the history of changes made to the product once it enters the registry system.**
  role: **Concrete**

    - **Modification_Detail - occurs 1 to * times**

      description: **The Modification_Detail class provides the details of one round of modification for the product. The first, required, instance of this class documents the date the product was first registered.**
      role: **Concrete**
      attribute: **description**
      attribute: **modification_date**
      attribute: **version_id**

    - **End** Modification_Detail
  - **End** Modification_History
- **End** Identification_Area

- **Reference_List - occurs 0 to 1 times**

  description: **The Reference_List class provides lists general references and cross-references for the product. References cited elsewhere in the label need not be repeated here.**
  role: **Concrete**

    - **External_Reference - occurs 0 to * times**

      description: **The External_Reference class is used to reference a source outside the PDS registry system.**
      role: **Concrete**
      attribute: **description** Optional
      attribute: **doi** Optional
      attribute: **reference_text**

    - **End** External_Reference

    - **Internal_Reference - occurs 0 to * times**

      description: **The Internal_Reference class is used to cross-reference other products in the PDS registry system.**
      role: **Concrete**
      attribute: **comment** Optional
      attribute: **lid_reference** Optional
      attribute: **lidvid_reference** Optional
      attribute: **reference_type**

    - **End** Internal_Reference
- **End** Reference_List

- **Volume_PDS3 occurs 1 times**

  description: **The Volume_PDS3 class is used to capture the volume information from the PDS3 Data Set Catalog.**
  role: **Concrete**
  attribute: **archive_status** value: **ARCHIVED, ARCHIVED_ACCUMULATING, IN_LIEN_RESOLUTION, IN_LIEN_RESOLUTION_ACCUMULATING, IN_PEER_REVIEW, IN_PEER_REVIEW_ACCUMULATING, IN_QUEUE, IN_QUEUE_ACCUMULATING, LOCALLY_ARCHIVED, LOCALLY_ARCHIVED_ACCUMULATING, PRE_PEER_REVIEW, PRE_PEER_REVIEW_ACCUMULATING, SAFED, SUPERSEDED**
  attribute: **archive_status_note**
  attribute: **curating_node_id** Optional
  attribute: **description** Optional

attribute: **medium_type**
attribute: **publication_date**
attribute: **volume_de_fullname**
attribute: **volume_format**
attribute: **volume_id**
attribute: **volume_name**
attribute: **volume_set_id**
attribute: **volume_size**
attribute: **volume_version_id**

- **End** Volume_PDS3
- **End** Product_Volume_PDS3

- **Product_Volume_Set_PDS3**

  description: **A Product Volume Set PDS3 product captures the PDS3 volume set information.**
  role: **Concrete**

  - **Identification_Area occurs 1 times**

    description: **The identification area consists of attributes that identify and name an object.**
    role: **Concrete**
    attribute: **information_model_version** value: **1.1.0.1**
    attribute: **logical_identifier**
    attribute: **product_class** value: **Product_Volume_Set_PDS3**
    attribute: **title**
    attribute: **version_id**

    - **Alias_List - occurs 0 to 1 times**

      description: **The Alias_List class provides a list of paired alternate names and identifications for this product in this or some other archive or data system.**
      role: **Concrete**

      - **Alias - occurs 1 to * times**

        description: **The Alias class provides a single alternate name and identification for this product in this or some other archive or data system.**
        role: **Concrete**
        attribute: **alternate_id** Optional
        attribute: **alternate_title** Optional
        attribute: **comment** Optional

      - **End** Alias
    - **End** Alias_List

  - **Citation_Information - occurs 0 to 1 times**

    description: **The Citation_Information class provides specific fields often used in citing the product in journal articles, abstract services, and other reference contexts.**
    role: **Concrete**
    attribute: **author_list** Optional
    attribute: **description**
    attribute: **editor_list** Optional
    attribute: **keyword** Optional
    attribute: **publication_year**

  - **End** Citation_Information

  - **Modification_History - occurs 0 to 1 times**

    description: **The Modification_History class tracks the history of changes made to the product once it enters the registry system.**
    role: **Concrete**

    - **Modification_Detail - occurs 1 to * times**

      description: **The Modification_Detail class provides the details of one round of modification for the product. The first, required, instance of this class documents the date the product was first registered.**
      role: **Concrete**
      attribute: **description**

attribute: **modification_date**
attribute: **version_id**

- **End** Modification_Detail
  - **End** Modification_History
- **End** Identification_Area

- **Reference_List - occurs 0 to 1 times**

  description: **The Reference_List class provides lists general references and cross-references for the product. References cited elsewhere in the label need not be repeated here.**
  role: **Concrete**

  - **External_Reference - occurs 0 to * times**

    description: **The External_Reference class is used to reference a source outside the PDS registry system.**
    role: **Concrete**
    attribute: **description** Optional
    attribute: **doi** Optional
    attribute: **reference_text**

    - **End** External_Reference

  - **Internal_Reference - occurs 0 to * times**

    description: **The Internal_Reference class is used to cross-reference other products in the PDS registry system.**
    role: **Concrete**
    attribute: **comment** Optional
    attribute: **lid_reference** Optional
    attribute: **lidvid_reference** Optional
    attribute: **reference_type**

    - **End** Internal_Reference
- **End** Reference_List

- **Volume_Set_PDS3 occurs 1 times**

  description: **The Volume_Set_PDS3 class is used to capture the volume set information from the PDS3 Data Set Catalog.**
  role: **Concrete**
  attribute: **description** Optional
  attribute: **volume_series_name**
  attribute: **volume_set_id**
  attribute: **volume_set_name**
  attribute: **volumes**

  - **End** Volume_Set_PDS3
- **End** Product_Volume_Set_PDS3

- **Product_XML_Schema**

  description: **The Product_XML_Schema describes a resource used for the PDS4 implementation into XML.**
  role: **Concrete**

  - **File_Area_XML_Schema - occurs 1 to * times**

    description: **The File Area XML Schema class describes a file that contains a resource used for the PDS4 implementation into XML.**
    role: **Concrete**

    - **File occurs 1 times**

      description: **The File class consists of attributes that describe a file in a data store.**
      role: **Concrete**
      attribute: **comment** Optional
      attribute: **creation_date_time** Optional
      attribute: **file_name**
      attribute: **file_size** Optional
      attribute: **local_identifier** Optional

attribute: **md5_checksum** Optional
attribute: **records** Optional

- **End** File

- **XML_Schema occurs 1 times**

  description: **The XML Schema class defines a resource used for the PDS4 implementation into XML.**
  role: **Concrete**
  attribute: **description** Optional
  attribute: **ldd_version_id** Optional
  attribute: **local_identifier** Optional
  attribute: **name** Optional
  attribute: **object_length** Optional
  attribute: **offset**
  attribute: **parsing_standard_id** value: **Schematron ISO/IEC 19757-3:2006, XML Schema Version 1.1**

  - **End** XML_Schema
- **End** File_Area_XML_Schema

- **Identification_Area occurs 1 times**

  description: **The identification area consists of attributes that identify and name an object.**
  role: **Concrete**
  attribute: **information_model_version** value: **1.1.0.1**
  attribute: **logical_identifier**
  attribute: **product_class** value: **Product_XML_Schema**
  attribute: **title**
  attribute: **version_id**

  - **Alias_List - occurs 0 to 1 times**

    description: **The Alias_List class provides a list of paired alternate names and identifications for this product in this or some other archive or data system.**
    role: **Concrete**

    - **Alias - occurs 1 to * times**

      description: **The Alias class provides a single alternate name and identification for this product in this or some other archive or data system.**
      role: **Concrete**
      attribute: **alternate_id** Optional
      attribute: **alternate_title** Optional
      attribute: **comment** Optional

      - **End** Alias
  - **End** Alias_List

  - **Citation_Information - occurs 0 to 1 times**

    description: **The Citation_Information class provides specific fields often used in citing the product in journal articles, abstract services, and other reference contexts.**
    role: **Concrete**
    attribute: **author_list** Optional
    attribute: **description**
    attribute: **editor_list** Optional
    attribute: **keyword** Optional
    attribute: **publication_year**

  - **End** Citation_Information

  - **Modification_History - occurs 0 to 1 times**

    description: **The Modification_History class tracks the history of changes made to the product once it enters the registry system.**
    role: **Concrete**

    - **Modification_Detail - occurs 1 to * times**

      description: **The Modification_Detail class provides the details of one round of modification for the product. The first, required, instance of this class documents the date the product was first registered.**
      role: **Concrete**
      attribute: **ldd_version_id**

- attribute: **description**
- attribute: **modification_date**
- attribute: **version_id**

  - **End** Modification_Detail
- **End** Modification_History
- **End** Identification_Area

- **Reference_List - occurs 0 to 1 times**

  description: **The Reference_List class provides lists general references and cross-references for the product. References cited elsewhere in the label need not be repeated here.**
  role: **Concrete**

  - **External_Reference - occurs 0 to * times**

    description: **The External_Reference class is used to reference a source outside the PDS registry system.**
    role: **Concrete**
    attribute: **description** Optional
    attribute: **doi** Optional
    attribute: **reference_text**

    - **End** External_Reference

  - **Internal_Reference - occurs 0 to * times**

    description: **The Internal_Reference class is used to cross-reference other products in the PDS registry system.**
    role: **Concrete**
    attribute: **comment** Optional
    attribute: **lid_reference** Optional
    attribute: **lidvid_reference** Optional
    attribute: **reference_type**

    - **End** Internal_Reference
  - **End** Reference_List
- **End** Product_XML_Schema

- **Product_Zipped**

  description: **The Product_Zipped is a product with references to other products. The referenced products and all associated products and files are packaged into a single ZIP file.**
  role: **Concrete**

  - **File occurs 1 times**

    description: **The File class consists of attributes that describe a file in a data store.**
    role: **Concrete**
    attribute: **comment** Optional
    attribute: **creation_date_time** Optional
    attribute: **file_name**
    attribute: **file_size** Optional
    attribute: **local_identifier** Optional
    attribute: **md5_checksum** Optional
    attribute: **records** Optional

    - **End** File

  - **Identification_Area occurs 1 times**

    description: **The identification area consists of attributes that identify and name an object.**
    role: **Concrete**
    attribute: **information_model_version** value: **1.1.0.1**
    attribute: **logical_identifier**
    attribute: **product_class** value: **Product_Zipped**
    attribute: **title**
    attribute: **version_id**

    - **Alias_List - occurs 0 to 1 times**

description: **The Alias_List class provides a list of paired alternate names and identifications for this product in this or some other archive or data system.**
role: **Concrete**

- **Alias - occurs 1 to * times**

  description: **The Alias class provides a single alternate name and identification for this product in this or some other archive or data system.**
  role: **Concrete**
  attribute: **alternate_id** Optional
  attribute: **alternate_title** Optional
  attribute: **comment** Optional

  - **End** Alias
- **End** Alias_List

- **Citation_Information - occurs 0 to 1 times**

  description: **The Citation_Information class provides specific fields often used in citing the product in journal articles, abstract services, and other reference contexts.**
  role: **Concrete**
  attribute: **author_list** Optional
  attribute: **description**
  attribute: **editor_list** Optional
  attribute: **keyword** Optional
  attribute: **publication_year**

  - **End** Citation_Information

- **Modification_History - occurs 0 to 1 times**

  description: **The Modification_History class tracks the history of changes made to the product once it enters the registry system.**
  role: **Concrete**

  - **Modification_Detail - occurs 1 to * times**

    description: **The Modification_Detail class provides the details of one round of modification for the product. The first, required, instance of this class documents the date the product was first registered.**
    role: **Concrete**
    attribute: **description**
    attribute: **modification_date**
    attribute: **version_id**

    - **End** Modification_Detail
  - **End** Modification_History
- **End** Identification_Area

- **Internal_Reference - occurs 1 to * times**

  description: **The Internal_Reference class is used to cross-reference other products in the PDS registry system.**
  role: **Concrete**
  attribute: **comment** Optional
  attribute: **lid_reference** Optional
  attribute: **lidvid_reference** Optional
  attribute: **reference_type**

- **End** Internal_Reference

- **Zip occurs 1 times**

  description: **The Zip class describes a zip file.**
  role: **Concrete**
  attribute: **container_type** value: **GZIP, LZIP, TAR, ZIP**
  attribute: **description**

  - **End** Zip
- **End** Product_Zipped

- **Radio_Occultation**

description: **This class is required for all radio ring occultations**
role: **Concrete**
attribute: **SCLK_start_time** Optional
attribute: **SCLK_stop_time** Optional
attribute: **along_track_timing_offset** Optional
attribute: **dsn_station_number**
attribute: **earth_received_start_time_utc** Optional
attribute: **earth_received_stop_time_utc** Optional
attribute: **frequency_band** value: **C, D, E, F, G, H, K, Ka, Ku, Q, R, S, U, V, W, X, Y**
attribute: **highest_detectable_opacity** Optional
attribute: **light_source_incidence_angle** Optional
attribute: **lowest_detectable_opacity** Optional
attribute: **maximum_light_source_incidence_angle** Optional
attribute: **maximum_observed_ring_azimuth**
attribute: **maximum_observed_ring_elevation** Optional
attribute: **maximum_radial_sampling_interval** Optional
attribute: **maximum_ring_longitude**
attribute: **maximum_ring_radius**
attribute: **maximum_wavelength** Optional
attribute: **minimum_light_source_incidence_angle** Optional
attribute: **minimum_observed_ring_azimuth**
attribute: **minimum_observed_ring_elevation** Optional
attribute: **minimum_radial_sampling_interval** Optional
attribute: **minimum_ring_longitude**
attribute: **minimum_ring_radius**
attribute: **minimum_wavelength** Optional
attribute: **observed_event_start_tdb** Optional
attribute: **observed_event_stop_tdb** Optional
attribute: **observed_ring_elevation** Optional
attribute: **occultation_type** value: **Radio, Solar, Stellar**
attribute: **orbit_number** Optional
attribute: **planetary_occultation_flag** value: **N, Y** Optional
attribute: **radial_resolution**
attribute: **radial_sampling_interval** Optional
attribute: **reference_time_utc**
attribute: **ring_event_start_tdb** Optional
attribute: **ring_event_start_time_utc** Optional
attribute: **ring_event_stop_tdb** Optional
attribute: **ring_event_stop_time_utc** Optional
attribute: **ring_observation_id**
attribute: **ring_occultation_direction** value: **Both, Egress, Ingress, Multiple**
attribute: **ring_profile_direction** value: **Egress, Ingress, Multiple**
attribute: **source_pds3_id** Optional
attribute: **spacecraft_event_start_time_utc**
attribute: **spacecraft_event_stop_time_utc**
attribute: **wavelength** Optional

- **End** Radio_Occultation

- **Radio_Occultation_Support**

  description: **This class is required for all radio ring occultation calibration and geometry supplemental files.**
  role: **Concrete**
  attribute: **dsn_station_number**
  attribute: **frequency_band** value: **C, D, E, F, G, H, K, Ka, Ku, Q, R, S, U, V, W, X, Y**
  attribute: **maximum_observed_event_time**
  attribute: **minimum_observed_event_time**
  attribute: **occultation_type** value: **Radio, Solar, Stellar**
  attribute: **orbit_number** Optional
  attribute: **planetary_occultation_flag** value: **N, Y** Optional
  attribute: **reference_time_utc**
  attribute: **ring_observation_id**
  attribute: **ring_occultation_direction** value: **Both, Egress, Ingress, Multiple**
  attribute: **ring_profile_direction** value: **Egress, Ingress, Multiple**
  attribute: **sampling_parameter_interval**
  attribute: **sampling_parameter_name**
  attribute: **sampling_parameter_unit**
  attribute: **spice_filename** Optional

- **End** Radio_Occultation_Support

- ## Rings_Supplement

  description: **This class is required for all Rings Node currated data products**
  role: **Concrete**
  attribute: **ring_observation_id**
  attribute: **source_pds3_id** Optional

- **End** Rings_Supplement

- ## Stellar_Occultation

  description: **This class is required for all stellar ring occultations**
  role: **Concrete**
  attribute: **SCLK_start_time** Optional
  attribute: **SCLK_stop_time** Optional
  attribute: **highest_detectable_opacity** Optional
  attribute: **light_source_incidence_angle** Optional
  attribute: **lowest_detectable_opacity** Optional
  attribute: **maximum_observed_ring_azimuth**
  attribute: **maximum_observed_ring_elevation** Optional
  attribute: **maximum_radial_sampling_interval** Optional
  attribute: **maximum_ring_longitude**
  attribute: **maximum_ring_radius**
  attribute: **maximum_wavelength** Optional
  attribute: **minimum_observed_ring_azimuth**
  attribute: **minimum_observed_ring_elevation** Optional
  attribute: **minimum_radial_sampling_interval** Optional
  attribute: **minimum_ring_longitude**
  attribute: **minimum_ring_radius**
  attribute: **minimum_wavelength** Optional
  attribute: **observed_event_start_tdb** Optional
  attribute: **observed_event_stop_tdb** Optional
  attribute: **observed_ring_elevation** Optional
  attribute: **occultation_type** value: **Radio, Solar, Stellar**
  attribute: **orbit_number** Optional
  attribute: **planetary_occultation_flag** value: **N, Y** Optional
  attribute: **radial_resolution**
  attribute: **radial_sampling_interval** Optional
  attribute: **ring_event_start_tdb** Optional
  attribute: **ring_event_start_time_utc** Optional
  attribute: **ring_event_stop_tdb** Optional
  attribute: **ring_event_stop_time_utc** Optional
  attribute: **ring_observation_id**
  attribute: **ring_occultation_direction** value: **Both, Egress, Ingress, Multiple**
  attribute: **ring_profile_direction** value: **Egress, Ingress, Multiple**
  attribute: **source_pds3_id** Optional
  attribute: **star_name**
  attribute: **sub_stellar_clock_angle** Optional
  attribute: **sub_stellar_ring_azimuth** Optional
  attribute: **wavelength** Optional

- **End** Stellar_Occultation

- ## Submission_Information_Package

  description: **The Submission Information Package (SIP) class is an Information Package that is delivered by a Data Provider to an archive that conforms to the Open Archive Information System (OAIS) Reference Model for use in the construction of one or more AIPs.**
  role: **Concrete**
  attribute: **description**

- **End** Submission_Information_Package

- **Telemetry_Parameters**

  description: **The Telemetry_Parameters class contains downlink-related attributes used primarily during mission operations.**
  role: **Concrete**
  attribute: **application_process_id** Optional
  attribute: **application_process_name** Optional
  attribute: **earth_received_start_date_time** Optional
  attribute: **earth_received_stop_date_time** Optional
  attribute: **expected_packets** Optional
  attribute: **packet_map_mask** Optional
  attribute: **received_packets** Optional
  attribute: **spice_file_name** Optional
  attribute: **telemetry_format_id** Optional
  attribute: **telemetry_provider_id** Optional
  attribute: **telemetry_source_name** Optional
  attribute: **telemetry_source_type** value: **DATA_PRODUCT, SFDU** Optional

- **End** Telemetry_Parameters

---

8. PDS4 Attribute Definitions - Thu Nov 21 17:20:17 PST 2013

Generated from the PDS4 Information Model Version 1.1.0.1

- **SCLK_start_time in Radio_Occultation**

  steward: **rings**
  namespace id: **rings**
  class: **Radio_Occultation**
  version: **1.1**

  - definition: *SCLK_start_time is the value of the spacecraft clock corresponding to the start_date_time given in the label. *
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **SCLK_start_time in Stellar_Occultation**

  steward: **rings**
  namespace id: **rings**
  class: **Stellar_Occultation**
  version: **1.1**

  - definition: *SCLK_start_time is the value of the spacecraft clock corresponding to the start_date_time given in the label. *
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **SCLK_stop_time in Radio_Occultation**

  steward: **rings**
  namespace id: **rings**
  class: **Radio_Occultation**
  version: **1.1**

  - definition: *SCLK_stop_time is the value of the spacecraft clock corresponding to the stop_date_time given in the label. *
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **SCLK_stop_time in Stellar_Occultation**

  steward: **rings**
  namespace id: **rings**
  class: **Stellar_Occultation**

version: **1.1**

- definition: *SCLK_stop_time is the value of the spacecraft clock corresponding to the stop_date_time given in the label. *
- value_data_type: **ASCII_Short_String_Collapsed**
- minimum_characters: **1**
- maximum_characters: **255**
- nillable: **false**

- **abstract_desc in Data_Set_PDS3**

  steward: **ops**
  namespace id: **pds**
  class: **Data_Set_PDS3**
  version: **1.1**

  - definition: **The abstract desc attribute provides a summary of a text, scientific article, or document.**
  - value_data_type: **ASCII_Text_Preserved**
  - minimum_characters: **1**
  - nillable: **false**

- **abstract_flag in DD_Class**

  steward: **ops**
  namespace id: **pds**
  class: **DD_Class**
  version: **1.1**

  - definition: **The abstract flag attribute indicates whether or not the class can be instantiated. Abstract flag is only included if a value of 'true' is desired and indicates that the class is abstract and cannot be used in a label.**
  - value_data_type: **ASCII_Boolean**
  - nillable: **false**

- **abstract_flag in DD_Class_Full**

  steward: **ops**
  namespace id: **pds**
  class: **DD_Class_Full**
  version: **1.1**

  - definition: **The abstract flag attribute indicates whether or not the class can be instantiated. Abstract flag is only included if a value of 'true' is desired and indicates that the class is abstract and cannot be used in a label.**
  - value_data_type: **ASCII_Boolean**
  - nillable: **false**

- **acknowledgement_text in Document**

  steward: **pds**
  namespace id: **pds**
  class: **Document**
  version: **1.1**

  - definition: **The acknowledgement_text attribute is a character string which recognizes another's contribution, authority, or right.**
  - value_data_type: **ASCII_Text_Preserved**
  - minimum_characters: **1**
  - nillable: **false**

- **address in Facility**

  steward: **pds**
  namespace id: **pds**
  class: **Facility**
  version: **1.1**

  - definition: **The address attribute provides a mailing address.**
  - value_data_type: **UTF8_Text_Preserved**
  - minimum_characters: **1**
  - nillable: **false**

- **affiliation_type in PDS_Affiliate**

  steward: **ops**

namespace id: **pds**
class: **PDS_Affiliate**
version: **1.1**

- definition: **The affiliation type data attribute describes the type of relationship an individual has with the PDS.**
- value_data_type: **ASCII_Short_String_Collapsed** - Enumerated
- minimum_characters: **1**
- maximum_characters: **255**
- nillable: **false**
- permissible values
  Affiliate - The PDS_Affiliate has affiliation type Affiliate
  Data Provider - The PDS_Affiliate has affiliation type Data Provider
  Manager - The PDS_Affiliate has affiliation type Manager
  Technical Staff - The PDS_Affiliate has affiliation type Technical Staff

- **along_track_timing_offset in Radio_Occultation**

  steward: **rings**
  namespace id: **rings**
  class: **Radio_Occultation**
  version: **1.1**

  - definition: *along_track_timing_offset is a timing offset to the along track spacecraft position. It is the value that minimizes differences in radii of matching circular ring features observed on the ingress and egress sides of the occultation track. Optional in labels for radio occultation. Nillable in which case the nil_reason should be 'inapplicable'. *
  - value_data_type: **ASCII_Real**
  - unit_of_measure_type: **Units_of_Time**
  - valid units: **day, hr, julian day, microseconds, min, ms, s, yr**
  - nillable: **false**

- **alternate_designation in Target_Identification**

  steward: **pds**
  namespace id: **pds**
  class: **Target_Identification**
  version: **1.1**

  - definition: **The alternate_designation attribute provides aliases.**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **alternate_id in Alias**

  steward: **pds**
  namespace id: **pds**
  class: **Alias**
  version: **1.1**

  - definition: **The alternate_id attribute provides an additional identifier supplied by the data provider.**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **alternate_telephone_number in PDS_Affiliate**

  steward: **ops**
  namespace id: **pds**
  class: **PDS_Affiliate**
  version: **1.1**

  - definition: **The telephone_number attribute provides a telephone number in international notation in compliance with the E.164 telephone number format recommendation.**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **alternate_title in Alias**

  steward: **pds**
  namespace id: **pds**

class: **Alias**
version: **1.1**

- definition: **The alternate _title attribute provides an alternate title for the product.**
- value_data_type: **ASCII_Short_String_Collapsed**
- minimum_characters: **1**
- maximum_characters: **255**
- nillable: **false**

- **altitude in Telescope**

  steward: **pds**
  namespace id: **pds**
  class: **Telescope**
  version: **1.1**

  - definition: **The altitude attribute provides the height of anything above a given reference plane.**
  - value_data_type: **ASCII_Real**
  - unit_of_measure_type: **Units_of_Length**
  - valid units: **AU, Angstrom, cm, km, m, micrometer, mm, nm**
  - specified_unit_id: **m**
  - nillable: **false**

- **aperture in Telescope**

  steward: **pds**
  namespace id: **pds**
  class: **Telescope**
  version: **1.1**

  - definition: **The aperture attribute provides the diameter of an opening, usually circular, that limits the quantity of light that can enter an optical instrument.**
  - value_data_type: **ASCII_Real**
  - minimum_value: **0**
  - unit_of_measure_type: **Units_of_Length**
  - valid units: **AU, Angstrom, cm, km, m, micrometer, mm, nm**
  - specified_unit_id: **m**
  - nillable: **false**

- **application_process_id in Telemetry_Parameters**

  steward: **img**
  namespace id: **img**
  class: **Telemetry_Parameters**
  version: **1.1**

  - definition: **The application_process_id attribute identifies the process, or source, which created the data.**
  - value_data_type: **ASCII_Integer**
  - minimum_value: **0**
  - nillable: **false**

- **application_process_name in Telemetry_Parameters**

  steward: **img**
  namespace id: **img**
  class: **Telemetry_Parameters**
  version: **1.1**

  - definition: **The application_process_name attribute provides the name associated with the source or process which created the data.**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **127**
  - nillable: **false**

- **archive_status in Data_Set_PDS3**

  steward: **ops**
  namespace id: **pds**
  class: **Data_Set_PDS3**
  version: **1.1**

  - definition: **The ARCHIVE_STATUS attribute indicates the stage to which a data set has progressed in the archiving process, from IN QUEUE through ARCHIVED. It can also take on the values SUPERSEDED or SAFED, which indicate that the data set is not part of the active archive. ACCUMULATING can be appended to some values to indicate that the data set is incomplete and/or that not all components have reached the**

stage given by the root value; ACCUMULATING would be used, for example, when the archive is being delivered incrementally, as from a mission that lasts many months or years.

- value_data_type: **ASCII_Short_String_Collapsed** - Enumerated
- minimum_characters: **1**
- maximum_characters: **255**
- nillable: **false**
- permissible values

ARCHIVED - Archive status of the PDS3 data set is ARCHIVED (passed peer review with all liens resolved. Available through the Data Set Catalog and at NSSDC).

ARCHIVED_ACCUMULATING - Archive status of the PDS3 data set is ARCHIVED_ACCUMULATING (some parts of the data set are ARCHIVED, but other parts are in earlier stages of the archiving process and/or have not yet been delivered to PDS; use with caution).

IN_LIEN_RESOLUTION - Archive status of the PDS3 data set is IN_LIEN_RESOLUTION (peer review completed; liens are in the process of being resolved; use with caution).

IN_LIEN_RESOLUTION_ACCUMULATING - Archive status of the PDS3 data set is IN_LIEN_RESOLUTION_ACCUMULATING (some parts of the data set are IN LIEN RESOLUTION, but other parts are in earlier stages of the archiving process and/or have not yet been delivered to PDS; use with caution).

IN_PEER_REVIEW - Archive status of the PDS3 data set is IN_PEER_REVIEW (under peer review at the curation node but evaluation is not complete; use with caution).

IN_PEER_REVIEW_ACCUMULATING - Archive status of the PDS3 data set is IN_PEER_REVIEW_ACCUMULATING (some parts of the data set are IN PEER REVIEW, but other parts are in earlier stages of the archiving process and/or have not yet been delivered to PDS; use with caution).

IN_QUEUE - Archive status of the PDS3 data set is IN_QUEUE (received at the curation node but no action has been taken by the curation node; use with caution).

IN_QUEUE_ACCUMULATING - Archive status of the PDS3 data set is IN_QUEUE_ACCUMULATING (some parts of the data set are IN QUEUE, but other parts have not yet been delivered to PDS; use with caution).

LOCALLY_ARCHIVED - Archive status of the PDS3 data set is LOCALLY_ARCHIVED (passed peer review with all liens resolved; considered archived by the curation node but awaiting completion of the standard archiving process; possible TBD items include the arrival of the archive volume at NSSDC and ingestion of catalog information into the Data Set Catalog).

LOCALLY_ARCHIVED_ACCUMULATING - Archive status of the PDS3 data set is LOCALLY_ARCHIVED_ACCUMULATING (some parts of the data set are LOCALLY ARCHIVED, but other parts are in earlier stages of the archiving process and/or have not yet been delivered to PDS; use with caution).

PRE_PEER_REVIEW - Archive status of the PDS3 data set is PRE_PEER_REVIEW (being prepared for peer review under the direction of the curation node; use with caution).'

PRE_PEER_REVIEW_ACCUMULATING - Archive status of the PDS3 data set is PRE_PEER_REVIEW_ACCUMULATING (some parts of the data set are in PRE PEER REVIEW, but other parts are IN QUEUE and/or have not yet been delivered to PDS; use with caution).

SAFED - Archive status of the PDS3 data set is SAFED (the data set has been received by the PDS with no evaluation; data will not be formally archived).

SUPERSEDED - Archive status of the PDS3 data set is SUPERSEDED (this data set has been replaced by a newer version, implying that the data set is not to be used unless the requester has specific reasons; when a data set has been superseded the Engineering Node, will notify NSSDC that their databases need to be updated to advise users of the new status and the location of the replacement data set).

- **archive_status in Volume_PDS3**

steward: **ops**
namespace id: **pds**
class: **Volume_PDS3**
version: **1.1**

- definition: **The ARCHIVE_STATUS attribute indicates the stage to which a data set has progressed in the archiving process, from IN QUEUE through ARCHIVED. It can also take on the values SUPERSEDED or SAFED, which indicate that the data set is not part of the active archive. ACCUMULATING can be appended to some values to indicate that the data set is incomplete and/or that not all components have reached the stage given by the root value; ACCUMULATING would be used, for example, when the archive is being delivered incrementally, as from a mission that lasts many months or years.**
- value_data_type: **ASCII_Short_String_Collapsed** - Enumerated
- minimum_characters: **1**
- maximum_characters: **255**
- nillable: **false**
- permissible values

ARCHIVED - Archive status of the PDS3 volume is ARCHIVED (passed peer review with all liens resolved. Available through the Data Set Catalog and at NSSDC).

ARCHIVED_ACCUMULATING - Archive status of the PDS3 volume is ARCHIVED_ACCUMULATING (some parts of the volume are ARCHIVED, but other parts are in earlier stages of the archiving process and/or have not yet been delivered to PDS; use with caution).

IN_LIEN_RESOLUTION - Archive status of the PDS3 volume is IN_LIEN_RESOLUTION (peer review completed; liens are in the process of being resolved; use with caution).

IN_LIEN_RESOLUTION_ACCUMULATING - Archive status of the PDS3 volume is IN_LIEN_RESOLUTION_ACCUMULATING (some parts of the volume are IN LIEN RESOLUTION, but other parts are in earlier stages of the archiving process and/or have not yet been delivered to PDS; use with caution).

IN_PEER_REVIEW - Archive status of the PDS3 volume is IN_PEER_REVIEW (under peer review at the curation node but evaluation is not complete; use with caution).

IN_PEER_REVIEW_ACCUMULATING - Archive status of the PDS3 volume is IN_PEER_REVIEW_ACCUMULATING (some parts of the volume are IN PEER REVIEW, but other parts are in earlier stages of the archiving process and/or have not yet been delivered to PDS; use with caution).

IN_QUEUE - Archive status of the PDS3 volume is IN_QUEUE (received at the curation node but no action has been taken by the curation node; use with caution).

IN_QUEUE_ACCUMULATING - Archive status of the PDS3 volume is IN_QUEUE_ACCUMULATING (some parts of the volume are IN QUEUE, but other parts have not yet been delivered to PDS; use with caution).

LOCALLY_ARCHIVED - Archive status of the PDS3 volume is LOCALLY_ARCHIVED (passed peer review with all liens resolved; considered archived by the curation node but awaiting completion of the standard archiving process; possible TBD items include the arrival of the archive volume at NSSDC and ingestion of catalog information into the Data Set Catalog).

LOCALLY_ARCHIVED_ACCUMULATING - Archive status of the PDS3 volume is LOCALLY_ARCHIVED_ACCUMULATING (some parts of the volume are LOCALLY ARCHIVED, but other parts are in earlier stages of the archiving process and/or have not yet been delivered to PDS; use with caution).

PRE_PEER_REVIEW - Archive status of the PDS3 volume is PRE_PEER_REVIEW (being prepared for peer review under the direction of the curation node; use with caution).

PRE_PEER_REVIEW_ACCUMULATING - Archive status of the PDS3 volume is PRE_PEER_REVIEW_ACCUMULATING (some parts of the volume are in PRE PEER REVIEW, but other parts are IN QUEUE and/or have not yet been delivered to PDS; use with caution).

SAFED - Archive status of the PDS3 volume is SAFED (the volume has been received by the PDS with no evaluation; data will not be formally archived).

SUPERSEDED - Archive status of the PDS3 volume is SUPERSEDED (this volume has been replaced by a newer version, implying that the volume is not to be used unless the requester has specific reasons; when a volume has been superseded the Engineering Node, will notify NSSDC that their databases need to be updated to advise users of the new status and the location of the replacement volume).

- **archive_status_note in Volume_PDS3**

  steward: **ops**
  namespace id: **pds**
  class: **Volume_PDS3**
  version: **1.1**

  - definition: **The archive status note attribute provides a comment about the archive status.**
  - value_data_type: **ASCII_Text_Preserved**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **attribute_concept in DD_Attribute_Full**

  steward: **ops**
  namespace id: **pds**
  class: **DD_Attribute_Full**
  version: **1.1**

  - definition: **The attribute_concept attribute provides the type of information (classification) conveyed by the attribute – e.g., stop_date_time has attribute_concept = date_time.**
  - value_data_type: **ASCII_Short_String_Collapsed** - Enumerated
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**
  - permissible values
    Address - The attribute has been classified as being an Address
    Angle - The attribute has been classified as being an Angle
    Attribute - The attribute has been classified as being an Attribute
    Bit - The attribute has been classified as being a Bit
    Checksum - The attribute has been classified as being a Checksum
    Collection - The attribute has been classified as being a Collection
    Constant - The attribute has been classified as being a Constant
    Cosine - The attribute has been classified as being a Cosine
    Count - The attribute has been classified as being a Count
    DOI - The attribute has been classified as being a DOI
    Delimiter - The attribute has been classified as being a Delimiter
    Description - The attribute has been classified as being a Description
    Deviation - The attribute has been classified as being a Deviation
    Direction - The attribute has been classified as being a Direction
    Distance - The attribute has been classified as being a Distance
    Duration - The attribute has been classified as being a Duration
    Factor - The attribute has been classified as being a Factor
    Flag - The attribute has been classified as being a Flag
    Format - The attribute has been classified as being a Format
    Group - The attribute has been classified as being a Group
    Home - The attribute has been classified as being a Home
    ID - The attribute has been classified as being an Identifier
    Latitude - The attribute has been classified as being a Latitude
    Length - The attribute has been classified as being a Length
    List - The attribute has been classified as being a List
    Location - The attribute has been classified as being a Location
    Logical - The attribute has been classified as being a Logical

Longitude - The attribute has been classified as being a Longitude
Mask - The attribute has been classified as being a Mask
Maximum - The attribute has been classified as being a Maximum
Mean - The attribute has been classified as being a Mean
Median - The attribute has been classified as being a Median
Minimum - The attribute has been classified as being a Minimum
Name - The attribute has been classified as being a Name
Note - The attribute has been classified as being a Note
Number - The attribute has been classified as being a Number
Offset - The attribute has been classified as being an Offset
Order - The attribute has been classified as being an Order
Parallel - The attribute has been classified as being a Parallel
Password - The attribute has been classified as being a Password
Path - The attribute has been classified as being a Path
Pattern - The attribute has been classified as being a Pattern
Pixel - The attribute has been classified as being a Pixel
Quaternion - The attribute has been classified as being a Quaternion
Radius - The attribute has been classified as being a Radius
Ratio - The attribute has been classified as being a Ratio
Reference - The attribute has been classified as being a Reference
Resolution - The attribute has been classified as being a Resolution
Role - The attribute has been classified as being a Role
Rotation - The attribute has been classified as being a Rotation
Scale - The attribute has been classified as being a Scale
Sequence - The attribute has been classified as being a Sequence
Set - The attribute has been classified as being a Set
Size - The attribute has been classified as being a Size
Status - The attribute has been classified as being a Status
Summary - The attribute has been classified as being a Summary
Syntax - The attribute has been classified as being a Syntax
Temperature - The attribute has been classified as being a Temperature
Text - The attribute has been classified as being a Text
Title - The attribute has been classified as being a Title
Type - The attribute has been classified as being a Type
Unit - The attribute has been classified as being a Unit
Unknown - The attribute has an Unknown classification
Value - The attribute has been classified as being a Value
Vector - The attribute has been classified as being a Vector

- **author_list in Software**

  steward: **ops**
  namespace id: **pds**
  class: **Software**
  version: **1.1**

  - definition: **The author_list attribute provides a list of people to be cited as the authors of the asssociated product. Lists are constructed with last names first and first and middle names and/or initials following. Initials are terminated by periods and delimited by single spaces. Suffixes (if applicable) follow everything else, after a final comma. Hyphenated names may be reduced to initials as "J.-P." Each person's full name is separated from the next by a semi-colon. There is no "and" before the last name. If there is no author list, editor_list must be present and non-null.**
  - value_data_type: **UTF8_Text_Preserved**
  - minimum_characters: **1**
  - nillable: **false**

- **author_list in Citation_Information**

  steward: **pds**
  namespace id: **pds**
  class: **Citation_Information**
  version: **1.1**

  - definition: **The author_list attribute provides a list of people to be cited as the authors of the asssociated product. Lists are constructed with last names first and first and middle names and/or initials following. Initials are terminated by periods and delimited by single spaces. Suffixes (if applicable) follow everything else, after a final comma. Hyphenated names may be reduced to initials as "J.-P." Each person's full name is separated from the next by a semi-colon. There is no "and" before the last name. If there is no author list, editor_list must be present and non-null.**
  - value_data_type: **UTF8_Text_Preserved**
  - minimum_characters: **1**
  - nillable: **false**

- **author_list in Document**

  steward: **pds**

namespace id: **pds**
class: **Document**
version: **1.1**

- definition: **The author_list attribute provides a list of people to be cited as the authors of the asssociated product. Lists are constructed with last names first and first and middle names and/or initials following. Initials are terminated by periods and delimited by single spaces. Suffixes (if applicable) follow everything else, after a final comma. Hyphenated names may be reduced to initials as "J.-P." Each person's full name is separated from the next by a semi-colon. There is no "and" before the last name. If there is no author list, editor_list must be present and non-null.**
- value_data_type: **UTF8_Text_Preserved**
- minimum_characters: **1**
- nillable: **false**

- **axes in Array**

  steward: **pds**
  namespace id: **pds**
  class: **Array**
  version: **1.1**

  - definition: **The axes attribute provides a count of the axes.**
  - value_data_type: **ASCII_Integer**
  - minimum_value: **1**
  - maximum_value: **16**
  - nillable: **false**

- **axes in Array_1D**

  steward: **pds**
  namespace id: **pds**
  class: **Array_1D**
  version: **1.1**

  - definition: **The axes attribute provides a count of the axes.**
  - value_data_type: **ASCII_Integer** - Enumerated
  - minimum_value: **1**
  - maximum_value: **16**
  - nillable: **false**
  - permissible value
    1 - Array_1D has 1 axis

- **axes in Array_2D**

  steward: **pds**
  namespace id: **pds**
  class: **Array_2D**
  version: **1.1**

  - definition: **The axes attribute provides a count of the axes.**
  - value_data_type: **ASCII_Integer** - Enumerated
  - minimum_value: **1**
  - maximum_value: **16**
  - nillable: **false**
  - permissible value
    2 - Array_2D has 2 axes

- **axes in Array_3D**

  steward: **pds**
  namespace id: **pds**
  class: **Array_3D**
  version: **1.1**

  - definition: **The axes attribute provides a count of the axes.**
  - value_data_type: **ASCII_Integer** - Enumerated
  - minimum_value: **1**
  - maximum_value: **16**
  - nillable: **false**
  - permissible value
    3 - Array_2D has 3 axes

- **axis_index_order in Array**

  steward: **pds**
  namespace id: **pds**

class: **Array**
version: **1.1**

- definition: **The axis_index_order attribute provides the axis index that varies fastest with respect to storage order.**
- value_data_type: **ASCII_Short_String_Collapsed** - Enumerated
- minimum_characters: **1**
- maximum_characters: **255**
- nillable: **false**
- permissible value
  Last Index Fastest - The values of a multi-dimensional array are stored in an order such that the last index changes fastest and the first index slowest.

- **axis_name in Axis_Array**

steward: **pds**
namespace id: **pds**
class: **Axis_Array**
version: **1.1**

- definition: **The axis_name attribute provides a word or combination of words by which the axis is known.**
- value_data_type: **ASCII_Short_String_Collapsed**
- minimum_characters: **1**
- maximum_characters: **255**
- nillable: **false**
- schematron rule: **The name of the first axis of an Array_2D_Image must be set to either Line or Sample.**
- schematron rule: **The name of the second axis of an Array_2D_Image must be set to either Line or Sample.**
- schematron rule: **In an Array_3D_Spectrum, if the axis_name is 'Band', then the Band_Bin_Set class must be present.**

- **band_number in Band_Bin**

steward: **img**
namespace id: **pds**
class: **Band_Bin**
version: **1.1**

- definition: **The band_number attribute provides a number corresponding to the band in the spectral qube. The band number is equivalent to the instrument band number.**
- value_data_type: **ASCII_Integer**
- minimum_value: **1**
- maximum_value: **512**
- nillable: **false**

- **band_width in Band_Bin**

steward: **img**
namespace id: **pds**
class: **Band_Bin**
version: **1.1**

- definition: **The band_width attributes provides the width, at half height, of the band.**
- value_data_type: **ASCII_Real**
- minimum_value: **0**
- unit_of_measure_type: **Units_of_Length**
- valid units: **AU, Angstrom, cm, km, m, micrometer, mm, nm**
- nillable: **false**

- **bit_fields in Packed_Data_Fields**

steward: **pds**
namespace id: **pds**
class: **Packed_Data_Fields**
version: **1.1**

- definition: **The bit_fields attribute provides the number of defined bit fields (Field_Bit definitions) within the Packed_Data_Field.**
- value_data_type: **ASCII_Integer**
- minimum_value: **1**
- nillable: **false**

- **bit_mask in Object_Statistics**

steward: **pds**
namespace id: **pds**
class: **Object_Statistics**

version: **1.1**

- definition: **The bit_mask attribute is a series of binary digits identifying the active bits in a value; it has exactly the same number of the bits as the array element to which it is applied.**
- value_data_type: **ASCII_Numeric_Base2**
- minimum_characters: **1**
- maximum_characters: **255**
- nillable: **false**

- **bit_string in Digital_Object**

steward: **pds**
namespace id: **pds**
class: **Digital_Object**
version: **1.1**

- definition: **The bit string attribute is a sequence of digital bits. It is the content of a digital object.**
- value_data_type: **ASCII_Short_String_Collapsed**
- minimum_characters: **1**
- maximum_characters: **255**
- nillable: **false**

- **bundle_type in Bundle**

steward: **pds**
namespace id: **pds**
class: **Bundle**
version: **1.1**

- definition: **The bundle_type attribute provides a classification for the bundle.**
- value_data_type: **ASCII_Short_String_Collapsed** - Enumerated
- minimum_characters: **1**
- maximum_characters: **255**
- nillable: **false**
- permissible values
  Archive - The Bundle contains at least one data collection
  Supplemental - The Bundle does not contain a data collection

- **center_wavelength in Band_Bin**

steward: **img**
namespace id: **pds**
class: **Band_Bin**
version: **1.1**

- definition: **The center_wavelength attribute provides the wavelength or frequency describing the center of a bin along the band axis of a spectral qube. When describing data from a spectrometer, the value corresponds to the peak of the response function for a particular detector and/or grating position.**
- value_data_type: **ASCII_Real**
- minimum_value: **0**
- unit_of_measure_type: **Units_of_Length**
- valid units: **AU, Angstrom, cm, km, m, micrometer, mm, nm**
- nillable: **false**

- **checksum_manifest_checksum in Information_Package_Component**

steward: **ops**
namespace id: **pds**
class: **Information_Package_Component**
version: **1.1**

- definition: **The checksum manifest checksum provides the checksum for the checksum manifest file.**
- value_data_type: **ASCII_MD5_Checksum**
- minimum_characters: **32**
- maximum_characters: **32**
- format: **0123456789abcdef**
- nillable: **false**

- **checksum_type in Information_Package_Component**

steward: **ops**
namespace id: **pds**
class: **Information_Package_Component**
version: **1.1**

- definition: **The checksum type attribute provides the name of the checksum algorithm used to calculate the**

checksum value.
- value_data_type: **ASCII_Short_String_Collapsed**
- minimum_characters: **1**
- maximum_characters: **255**
- nillable: **false**

- **citation_text in Data_Set_PDS3**

  steward: **ops**
  namespace id: **pds**
  class: **Data_Set_PDS3**
  version: **1.1**

  - definition: **The citation_text attribute provides a character string containing a literature or other citation in sufficient detail that the material could be located in PDS or elsewhere.**
  - value_data_type: **ASCII_Text_Preserved**
  - minimum_characters: **1**
  - nillable: **false**

- **class_name in DD_Attribute_Full**

  steward: **ops**
  namespace id: **pds**
  class: **DD_Attribute_Full**
  version: **1.1**

  - definition: **The class_name attribute provides the common name by which the class is identified, as well as the class within which the attribute is used.**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **collection_type in Collection**

  steward: **pds**
  namespace id: **pds**
  class: **Collection**
  version: **1.1**

  - definition: **The collection_type attribute provides a classification for the collection.**
  - value_data_type: **ASCII_Short_String_Collapsed** - Enumerated
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**
  - permissible values
    Browse - This is a BROWSE collection
    Calibration - This is a CALIBRATION collection
    Context - This is a CONTEXT collection
    Data - This is a DATA collection
    Document - This is a DOCUMENT collection
    Geometry - This is a GEOMETRY collection
    Miscellaneous - This is a MISCELLANEOUS collection
    SPICE Kernel - This is a SPICE Kernel collection
    XML Schema - This is an XML SCHEMA collection

- **comment in DD_Attribute**

  steward: **ops**
  namespace id: **pds**
  class: **DD_Attribute**
  version: **1.1**

  - definition: **The comment attribute is a character string expressing one or more remarks or thoughts relevant to the object.**
  - value_data_type: **ASCII_Text_Preserved**
  - minimum_characters: **1**
  - nillable: **false**

- **comment in DD_Attribute_Full**

  steward: **ops**
  namespace id: **pds**
  class: **DD_Attribute_Full**
  version: **1.1**

- definition: **The comment attribute is a character string expressing one or more remarks or thoughts relevant to the object.**
- value_data_type: **ASCII_Text_Preserved**
- minimum_characters: **1**
- nillable: **false**

- **comment in DD_Class_Full**

  steward: **ops**
  namespace id: **pds**
  class: **DD_Class_Full**
  version: **1.1**

    - definition: **The comment attribute is a character string expressing one or more remarks or thoughts relevant to the object.**
    - value_data_type: **ASCII_Text_Preserved**
    - minimum_characters: **1**
    - nillable: **false**

- **comment in Ingest_LDD**

  steward: **ops**
  namespace id: **pds**
  class: **Ingest_LDD**
  version: **1.1**

    - definition: **The comment attribute is a character string expressing one or more remarks or thoughts relevant to the object.**
    - value_data_type: **ASCII_Text_Preserved**
    - minimum_characters: **1**
    - nillable: **false**

- **comment in Alias**

  steward: **pds**
  namespace id: **pds**
  class: **Alias**
  version: **1.1**

    - definition: **The comment attribute is a character string expressing one or more remarks or thoughts relevant to the object.**
    - value_data_type: **ASCII_Text_Preserved**
    - minimum_characters: **1**
    - nillable: **false**

- **comment in Context_Area**

  steward: **pds**
  namespace id: **pds**
  class: **Context_Area**
  version: **1.1**

    - definition: **The comment attribute is a character string expressing one or more remarks or thoughts relevant to the object.**
    - value_data_type: **ASCII_Text_Preserved**
    - minimum_characters: **1**
    - nillable: **false**

- **comment in File**

  steward: **pds**
  namespace id: **pds**
  class: **File**
  version: **1.1**

    - definition: **The comment attribute is a character string expressing one or more remarks or thoughts relevant to the object.**
    - value_data_type: **ASCII_Text_Preserved**
    - minimum_characters: **1**
    - nillable: **false**

- **comment in Internal_Reference**

  steward: **pds**
  namespace id: **pds**

class: **Internal_Reference**
version: **1.1**

- definition: **The comment attribute provides one or more remarks or thoughts relevant to the object.**
- value_data_type: **ASCII_Text_Preserved**
- minimum_characters: **1**
- nillable: **false**

- **compile_note in Software_Source**

  steward: **ops**
  namespace id: **pds**
  class: **Software_Source**
  version: **1.1**

  - definition: **The compile note attribute provides a brief statement giving particulars about the compilation of the software source.**
  - value_data_type: **ASCII_Text_Preserved**
  - minimum_characters: **1**
  - nillable: **false**

- **conceptual_domain in DD_Value_Domain_Full**

  steward: **ops**
  namespace id: **pds**
  class: **DD_Value_Domain_Full**
  version: **1.1**

  - definition: **The conceptual_domain attribute provides the domain to which the value has been assigned.**
  - value_data_type: **ASCII_Short_String_Collapsed** - Enumerated
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**
  - permissible values
    Boolean - The value is classified as Boolean
    Integer - The value is classified as Integer
    Name - The value is classified as Name
    Numeric - The value is classified as Numeric
    Real - The value is classified as Real
    Short_String - The value is classified as Short_String
    Text - The value is classified as Text
    Time - The value is classified as Time
    Type - The value is classified as Type
    Unknown - The value has an Unknown classification

- **confidence_level_note in Data_Set_PDS3**

  steward: **ops**
  namespace id: **pds**
  class: **Data_Set_PDS3**
  version: **1.1**

  - definition: **The confidence_level_note attribute is a text field which characterizes the reliability of data within a data set or the reliability of a particular programming algorithm or software component. Essentially, this note discusses the level of confidence in the accuracy of the data or in the ability of the software to produce accurate results.**
  - value_data_type: **ASCII_Text_Preserved**
  - minimum_characters: **1**
  - nillable: **false**

- **constant_value in DD_Association**

  steward: **ops**
  namespace id: **pds**
  class: **DD_Association**
  version: **1.1**

  - definition: **The constant value attribute provides the value to be used if an attribute is static.**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **container_type in Zip**

  steward: **pds**

namespace id: **pds**
class: **Zip**
version: **1.1**

- definition: **The container type attribute indicates the method used to package the components.**
- value_data_type: **ASCII_Short_String_Collapsed** - Enumerated
- minimum_characters: **1**
- maximum_characters: **255**
- nillable: **false**
- permissible values
  GZIP - Product_Zipped is in container type GZIP
  LZIP - Product_Zipped is in container type LZIP
  TAR - Product_Zipped is in container type TAR
  ZIP - Product_Zipped is in container type ZIP

- **coordinate_source in Telescope**

steward: **pds**
namespace id: **pds**
class: **Telescope**
version: **1.1**

- definition: **The coordinate_source provides the name of the source of a set of coordinates.**
- value_data_type: **ASCII_Short_String_Collapsed** - Enumerated
- minimum_characters: **1**
- maximum_characters: **255**
- nillable: **false**
- permissible values
  Aerial survey - North American (1983) datum - The coordinate source is Aerial survey - North American (1983) datum
  Astronomical - The coordinate source is Astronomical
  Doppler determined - WGS 72 datum - The coordinate source is Doppler determined - WGS 72 datum
  Geodetic - Adindan datum - The coordinate source is Geodetic - Adindan datum
  Geodetic - Australian datum - The coordinate source is Geodetic - Australian datum
  Geodetic - Campo Inchauspe (Argentina) datum - The coordinate source is Geodetic - Campo Inchauspe (Argentina) datum
  Geodetic - Cape (South Africa) datum - The coordinate source is Geodetic - Cape (South Africa) datum
  Geodetic - Corregio Alegre (Brazil) datum - The coordinate source is Geodetic - Corregio Alegre (Brazil) datum
  Geodetic - European 1979 datum - The coordinate source is Geodetic - European 1979 datum
  Geodetic - European datum - The coordinate source is Geodetic - European datum
  Geodetic - GRS 80 datum - The coordinate source is Geodetic - GRS 80 datum
  Geodetic - Hermannskogel datum - The coordinate source is Geodetic - Hermannskogel datum
  Geodetic - Indian datum - The coordinate source is Geodetic - Indian datum
  Geodetic - La Canoa (Venezuela) datum - The coordinate source is Geodetic - La Canoa (Venezuela) datum
  Geodetic - New Zealand datum - The coordinate source is Geodetic - New Zealand datum
  Geodetic - North American (1927) datum - The coordinate source is Geodetic - North American (1927) datum
  Geodetic - Old Hawaiian datum - The coordinate source is Geodetic - Old Hawaiian datum
  Geodetic - Ordnance Survey of Great Britain (1936) datum - The coordinate source is Geodetic - Ordnance Survey of Great Britain (1936) datum
  Geodetic - Ordnance Survey of Great Britain (SN) 1980 datum - The coordinate source is Geodetic - Ordnance Survey of Great Britain (SN) 1980 datum
  Geodetic - Potsdam datum - The coordinate source is Geodetic - Potsdam datum
  Geodetic - Puerto Rican (1940) datum - The coordinate source is Geodetic - Puerto Rican (1940) datum
  Geodetic - South American datum - The coordinate source is Geodetic - South American datum
  Geodetic - Tokyo datum - The coordinate source is Geodetic - Tokyo datum
  Geodetic - WGS 84 datum - The coordinate source is Geodetic - WGS 84 datum
  Geodetic - datum unknown - The coordinate source is Geodetic - datum unknown
  Satellite determined - datum unknown - The coordinate source is Satellite determined - datum unknown
  Unknown - The coordinate source is Unknown

- **copyright in Document**

steward: **pds**
namespace id: **pds**
class: **Document**
version: **1.1**

- definition: **The copyright attribute is a character string giving information about the exclusive right to make copies, license, and otherwise exploit an object, whether physical or digital.**
- value_data_type: **ASCII_Text_Preserved**
- minimum_characters: **1**
- nillable: **false**

- **country in Facility**

steward: **pds**
namespace id: **pds**

class: **Facility**
version: **1.1**

- definition: **country**
- value_data_type: **ASCII_Short_String_Collapsed**
- minimum_characters: **1**
- maximum_characters: **255**
- nillable: **false**

- **creation_date_time in File**

  steward: **pds**
  namespace id: **pds**
  class: **File**
  version: **1.1**

  - definition: **The creation_date_time attribute provides a date and time when the object was created.**
  - value_data_type: **ASCII_Date_Time**
  - format: **YYYY-MM-DDTHH:MM:SS.SSS(Z)/YYYY-DOYTHH:MM:SS.SSS(Z)**
  - nillable: **false**

- **curating_node_id in Volume_PDS3**

  steward: **ops**
  namespace id: **pds**
  class: **Volume_PDS3**
  version: **1.1**

  - definition: **The curating_node_id attribute provides the id of the node currently maintaining the data set or volume and is responsible for maintaining catalog information.**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **data_regime in Primary_Result_Summary**

  steward: **pds**
  namespace id: **pds**
  class: **Primary_Result_Summary**
  version: **1.1**

  - definition: **The data_regime attribute provides the wavelength (or an analogous concept for things like particle detectors) of the observations, stated as a category.**
  - value_data_type: **ASCII_Short_String_Collapsed** - Enumerated
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**
  - permissible values
    Dust - Particles ranging in size from a few molecules to approximately 0.1 micrometer in diameter.
    Electric Field - A vector force field controlled primarily by the presence of electrons and/or ions
    Electrons - Subatomic particles with negative elementary charge.
    Far Infrared - Electromagnetic radiation in the approximate range: 1 THz - 10 THz (frequency), 30 micrometers - 300 micrometers (wavelength), or 4 meV - 40 meV (photon energy)
    Gamma Ray - Electromagnetic radiation in the approximate range: greater than 10 EHz (frequency), less than 0.01 nm (wavelength), or more than 100 keV (photon energy)
    Infrared - Electromagnetic radiation in the approximate range: 300 GHz - 405 THz (frequency), 750 nm - 1 mm (wavelength), or 1.24 meV - 1.7 eV (photon energy)
    Ions - Atoms or molecules in which the number of electrons and protons is unequal, giving them a net negative or positive electric charge.
    Magnetic Field - A vector force field produced by moving electric charges (currents) and/or the intrinsic magnetic properties of materials
    Microwave - Electromagnetic radiation in the approximate range: 300 MHz - 300 GHz (frequency), 1 mm - 1 m (wavelength), or 12 micro eV - 1.2 meV (photon energy)
    Millimeter - Electromagnetic radiation in the approximate range: 30 GHz - 300 GHz (frequency), 1 mm - 10 mm (wavelength), or 120 micro eV - 1.2 meV (photon energy)
    Near Infrared - Electromagnetic radiation in the approximate range: 300 THz - 1.5 PHz (frequency), 1 micrometer - 5 micrometer (wavelength), or 1 eV - 6 eV (photon energy)
    Particles - Discrete (but small) objects that can be characterized by a few simple physical properties such as volume and mass.
    Pressure - Measurement of ambient atmospheric pressure.
    Radio - Electromagnetic radiation in the approximate range: 3 Hz - 300 GHz (frequency), 1 mm - 100,000 km (wavelength), or 12 feV - 1.2 meV (photon energy)
    Sub-Millimeter - Electromagnetic radiation in the approximate range: 0.3 THz - 3 THz (frequency), 0.1 mm - 1 mm (wavelength), or 1.2 meV - 12 meV (photon energy)
    Temperature - Measurement of ambient temperature.
    Ultraviolet - Electromagnetic radiation in the approximate range: 790 THz - 30 PHz (frequency), 10 nm - 390 nm

(wavelength), or 3 eV - 120 eV (photon energy)
Visible - Electromagnetic radiation in the approximate range: 405 THz - 790 THz (frequency), 390 nm - 750 nm (wavelength), or 1.7 eV - 3.3 eV (photon energy)
X-Ray - Electromagnetic radiation in the approximate range: 30 PHz - 30 EHz (frequency), 0.01 nm - 10 nm (wavelength), or 120 eV - 120 keV (photon energy))

- **data_set_desc in Data_Set_PDS3**

  steward: **ops**
  namespace id: **pds**
  class: **Data_Set_PDS3**
  version: **1.1**

  - definition: **The data_set_desc attribute describes the content and type of a data set and provides information required to use the data (such as binning information).**
  - value_data_type: **ASCII_Text_Preserved**
  - minimum_characters: **1**
  - nillable: **false**

- **data_set_id in Data_Set_PDS3**

  steward: **ops**
  namespace id: **pds**
  class: **Data_Set_PDS3**
  version: **1.1**

  - definition: **The data set id provides a formal name used to refer to a data set.**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **data_set_name in Data_Set_PDS3**

  steward: **ops**
  namespace id: **pds**
  class: **Data_Set_PDS3**
  version: **1.1**

  - definition: **The data_set_name attribute provides the full name given to a data set or a data product. The data_set_name typically identifies the instrument that acquired the data of that instrument Example value data_set_id. Note This attribute is defined in the AMMOS Magellan catalog as an alias for file_name to provide backward compatibility**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **data_set_release_date in Data_Set_PDS3**

  steward: **ops**
  namespace id: **pds**
  class: **Data_Set_PDS3**
  version: **1.1**

  - definition: **The data_set_release_date attribute provides the date when a data set is released by the data producer for archive or publication. In many systems this represents the end of a proprietary or validation period. Formation rule In AMMOS identify the date at which a product may be released to the general public from proprietary access. AMMOS-related systems should apply this attribute only to proprietary data.**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **data_set_terse_desc in Data_Set_PDS3**

  steward: **ops**
  namespace id: **pds**
  class: **Data_Set_PDS3**
  version: **1.1**

  - definition: **A one line description of the data set**
  - value_data_type: **ASCII_Text_Preserved**
  - minimum_characters: **1**
  - nillable: **false**

- **data_type in Element_Array**

  steward: **pds**
  namespace id: **pds**
  class: **Element_Array**
  version: **1.1**

  - definition: **The data_type attribute provides the hardware representation used to store a value.**
  - value_data_type: **ASCII_Short_String_Collapsed** - Enumerated
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**
  - permissible values
    ComplexLSB16 - Values of Array_Element are stored as two 64-bit floating point numbers with the least significant byte first
    ComplexLSB8 - Values of Array_Element are stored as two 32-bit floating point numbers with the least significant byte first
    ComplexMSB16 - Values of Array_Element are stored as two 64-bit floating point numbers with the more significant byte first
    ComplexMSB8 - Values of Array_Element are stored as two 32-bit floating point numbers with the more significant byte first
    IEEE754LSBDouble - Values of Array_Element are stored as 64-bit IEEE binary floating point numbers with the least significant byte first
    IEEE754LSBSingle - Values of Array_Element are stored as 32-bit IEEE binary floating point numbers with the least significant byte first
    IEEE754MSBDouble - Values of Array_Element are stored as 64-bit IEEE binary floating point numbers with the most significant byte first
    IEEE754MSBSingle - Values of Array_Element are stored as 32-bit IEEE binary floating point numbers with the most significant byte first
    SignedBitString - Values of Array_Element are stored as signed bit strings
    SignedByte - Values of Array_Element are stored as 8-bit signed binary integers
    SignedLSB2 - Values of Array_Element are stored as 16-bit signed binary integers with the less significant byte first
    SignedLSB4 - Values of Array_Element are stored as 32-bit signed binary integers with the less significant byte first
    SignedLSB8 - Values of Array_Element are stored as 64-bit signed binary integers with the less significant byte first
    SignedMSB2 - Values of Array_Element are stored as 16-bit signed binary integers with the more significant byte first
    SignedMSB4 - Values of Array_Element are stored as twos-complement 32-bit binary integers with the most significant byte first
    SignedMSB8 - Values of Array_Element are stored as twos-complement 64-bit binary integers with the most significant byte first
    UnsignedBitString - Values of Array_Element are stored as unsigned bit strings
    UnsignedByte - Values of Array_Element are stored as 8-bit unsigned binary integers
    UnsignedLSB2 - Values of Array_Element are stored as 16-bit unsigned binary integers with the less significant byte first
    UnsignedLSB4 - Values of Array_Element are stored as 32-bit unsigned binary integers with the least significant byte first
    UnsignedLSB8 - Values of Array_Element are stored as 64-bit unsigned binary integers with the least significant byte first
    UnsignedMSB2 - Values of Array_Element are stored as 16-bit unsigned binary integers with the more significant byte first
    UnsignedMSB4 - Values of Array_Element are stored as 32-bit unsigned binary integers with the most significant byte first
    UnsignedMSB8 - Values of Array_Element are stored as 64-bit unsigned binary integers with the most significant byte first

- **data_type in Field_Binary**

  steward: **pds**
  namespace id: **pds**
  class: **Field_Binary**
  version: **1.1**

  - definition: **The data_type attribute provides the hardware representation used to store a value.**
  - value_data_type: **ASCII_Short_String_Collapsed** - Enumerated
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**
  - permissible values
    ASCII_AnyURI - Values in Field_Binary have data type ASCII_AnyURI
    ASCII_Boolean - Values in Field_Binary have data type ASCII_Boolean
    ASCII_DOI - Values in Field_Binary have data type ASCII_DOI
    ASCII_Date - Values in Field_Binary have data type ASCII_Date
    ASCII_Date_DOY - Values in Field_Binary have data type ASCII_Date_DOY
    ASCII_Date_Time - Values in Field_Binary have data type ASCII_Date_Time
    ASCII_Date_Time_DOY - Values in Field_Binary have data type ASCII_Date_Time_DOY

ASCII_Date_Time_UTC - Values in Field_Binary have data type ASCII_Date_Time_UTC
ASCII_Date_Time_YMD - Values in Field_Binary have data type ASCII_Date_Time_YMD
ASCII_Date_YMD - Values in Field_Binary have data type ASCII_Date_YMD
ASCII_Directory_Path_Name - Values in Field_Binary have data type ASCII_Directory_Path_Name
ASCII_File_Name - Values in Field_Binary have data type ASCII_File_Name
ASCII_File_Specification_Name - Values in Field_Binary have data type ASCII_File_Specification_Name
ASCII_Integer - Values in Table_Binary_Field have data type ASCII_Integer
ASCII_LID - Values in Field_Binary have data type ASCII_LID
ASCII_LIDVID - Values in Field_Binary have data type ASCII_LIDVID
ASCII_LIDVID_LID - Values in Field_Binary have data type ASCII_LIDVID_LID
ASCII_MD5_Checksum - Values in Field_Binary have data type ASCII_MD5_Checksum
ASCII_NonNegative_Integer - Values in Field_Binary have data type ASCII_NonNegative_Integer
ASCII_Numeric_Base16 - Values in Field_Binary have data type ASCII_Numeric_Base16
ASCII_Numeric_Base2 - Values in Field_Binary have data type ASCII_Numeric_Base2
ASCII_Numeric_Base8 - Values in Field_Binary have data type ASCII_Numeric_Base8
ASCII_Real - Values in Field_Binary have data type ASCII_Real
ASCII_String - Values in Field_Binary have data type ASCII_String
ASCII_Time - Values in Field_Binary have data type ASCII_Time
ASCII_VID - Values in Field_Binary have data type ASCII_VID
ComplexLSB16 - Values in Field_Binary have data type ComplexLSB16
ComplexLSB8 - Values in Field_Binary have data type ComplexLSB8
ComplexMSB16 - Values in Field_Binary have data type ComplexMSB16
ComplexMSB8 - Values in Field_Binary have data type ComplexMSB8
IEEE754LSBDouble - Values in Field_Binary have data type IEEE754LSBDouble
IEEE754LSBSingle - Values in Field_Binary have data type IEEE754LSBSingle
IEEE754MSBDouble - Values in Field_Binary have data type IEEE754MSBDouble
IEEE754MSBSingle - Values in Field_Binary have data type IEEE754MSBSingle
SignedBitString - Values in Field_Binary have data type SignedBitString
SignedByte - Values in Field_Binary have data type SignedByte
SignedLSB2 - Values in Field_Binary have data type SignedLSB2
SignedLSB4 - Values in Field_Binary have data type SignedLSB4
SignedLSB8 - Values in Field_Binary have data type SignedLSB8
SignedMSB2 - Values in Field_Binary have data type SignedMSB2
SignedMSB4 - Values in Field_Binary have data type SignedMSB4
SignedMSB8 - Values in Field_Binary have data type SignedMSB8
UTF8_String - Values in Field_Binary have data type UTF8_String
UnsignedBitString - Values in Field_Binary have data type UnsignedBitString
UnsignedByte - Values in Field_Binary have data type UnsignedByte
UnsignedLSB2 - Values in Field_Binary have data type UnsignedLSB2
UnsignedLSB4 - Values in Field_Binary have data type UnsignedLSB4
UnsignedLSB8 - Values in Field_Binary have data type UnsignedLSB8
UnsignedMSB2 - Values in Field_Binary have data type UnsignedMSB2
UnsignedMSB4 - Values in Field_Binary have data type UnsignedMSB4
UnsignedMSB8 - Values in Field_Binary have data type UnsignedMSB8

- **data_type in Field_Bit**

steward: **pds**
namespace id: **pds**
class: **Field_Bit**
version: **1.1**

- definition: **The data_type attribute provides the hardware representation used to store a value.**
- value_data_type: **ASCII_Short_String_Collapsed** - Enumerated
- minimum_characters: **1**
- maximum_characters: **255**
- nillable: **false**
- permissible values
  SignedBitString - Values of Array_Element are stored as signed bit strings
  UnsignedBitString - Values of Array_Element are stored as unsigned bit strings

- **data_type in Field_Character**

steward: **pds**
namespace id: **pds**
class: **Field_Character**
version: **1.1**

- definition: **The data_type attribute provides the hardware representation used to store a value.**
- value_data_type: **ASCII_Short_String_Collapsed** - Enumerated
- minimum_characters: **1**
- maximum_characters: **255**
- nillable: **false**
- permissible values
  ASCII_AnyURI - Values in Field_Character have data type ASCII_AnyURI
  ASCII_Boolean - Values in Field_Character have data type ASCII_Boolean
  ASCII_DOI - Values in Field_Character have data type ASCII_DOI

ASCII_Date - Values in Field_Character have data type ASCII_Date
ASCII_Date_DOY - Values in Field_Character have data type ASCII_Date_DOY
ASCII_Date_Time - Values in Field_Character have data type ASCII_Date_Time
ASCII_Date_Time_DOY - Values in Field_Character have data type ASCII_Date_Time_DOY
ASCII_Date_Time_UTC - Values in Field_Character have data type ASCII_Date_Time_UTC
ASCII_Date_Time_YMD - Values in Field_Character have data type ASCII_Date_Time_YMD
ASCII_Date_YMD - Values in Field_Character have data type ASCII_Date_YMD
ASCII_Directory_Path_Name - Values in Field_Character have data type ASCII_Directory_Path_Name
ASCII_File_Name - Values in Field_Character have data type ASCII_File_Name
ASCII_File_Specification_Name - Values in Field_Character have data type ASCII_File_Specification_Name
ASCII_Integer - Values in Field_Character have data type ASCII_Integer
ASCII_LID - Values in Field_Character have data type ASCII_LID
ASCII_LIDVID - Values in Field_Character have data type ASCII_LIDVID
ASCII_LIDVID_LID - Values in Field_Character have data type ASCII_LIDVID_LID
ASCII_MD5_Checksum - Values in Field_Character have data type ASCII_MD5_Checksum
ASCII_NonNegative_Integer - Values in Field_Character have data type ASCII_NonNegative_Integer
ASCII_Numeric_Base16 - Values in Field_Character have data type ASCII_Numeric_Base16
ASCII_Numeric_Base2 - Values in Field_Character have data type ASCII_Numeric_Base2
ASCII_Numeric_Base8 - Values in Field_Character have data type ASCII_Numeric_Base8
ASCII_Real - Values in Field_Character have data type ASCII_Real
ASCII_String - Values in Field_Character have data type ASCII_String
ASCII_Time - Values in Field_Character have data type ASCII_Time
ASCII_VID - Values in Field_Character have data type ASCII_VID
UTF8_String - Values in Field_Character have data type UTF8_String

- **data_type in Field_Delimited**

  steward: **pds**
  namespace id: **pds**
  class: **Field_Delimited**
  version: **1.1**

  - definition: **The data_type attribute provides the hardware representation used to store a value.**
  - value_data_type: **ASCII_Short_String_Collapsed** - Enumerated
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**
  - permissible values
    ASCII_AnyURI - The delimited field has data type ASCII_AnyURI
    ASCII_Boolean - Values in Field_Delimited have data type ASCII_Boolean
    ASCII_DOI - The delimited field has data type ASCII_DOI
    ASCII_Date - Values in Field_Delimited have data type ASCII_Date
    ASCII_Date_DOY - The delimited field has data type ASCII_Date_DOY
    ASCII_Date_Time - Values in Field_Delimited have data type ASCII_Date_Time
    ASCII_Date_Time_DOY - The delimited field has data type ASCII_Date_Time_DOY
    ASCII_Date_Time_UTC - The delimited field has data type ASCII_Date_Time_UTC
    ASCII_Date_Time_YMD - The delimited field has data type ASCII_Date_Time_YMD
    ASCII_Date_YMD - The delimited field has data type ASCII_Date_YMD
    ASCII_Directory_Path_Name - Values in Field_Delimited have data type ASCII_Directory_Path_Name
    ASCII_File_Name - The delimited field has data type ASCII_File_Name
    ASCII_File_Specification_Name - The delimited field has data type ASCII_File_Specification_Name
    ASCII_Integer - The delimited field has data type ASCII_Integer
    ASCII_LID - The delimited field has data type ASCII_LID
    ASCII_LIDVID - The delimited field has data type ASCII_LIDVID
    ASCII_LIDVID_LID - Values in Field_Delimited have data type ASCII_LIDVID_LID
    ASCII_MD5_Checksum - The delimited field has data type ASCII_MD5_Checksum
    ASCII_NonNegative_Integer - The delimited field has data type ASCII_NonNegative_Integer
    ASCII_Numeric_Base16 - The delimited field has data type ASCII_Numeric_Base16
    ASCII_Numeric_Base2 - The delimited field has data type ASCII_Numeric_Base2
    ASCII_Numeric_Base8 - Values in Field_Delimited have data type ASCII_Numeric_Base8
    ASCII_Real - The delimited field has data type ASCII_Real
    ASCII_String - Values in Field_Delimited have data type ASCII_String
    ASCII_Time - The delimited field has data type ASCII_Time
    ASCII_VID - The delimited field has data type ASCII_VID
    UTF8_String - Values in Field_Delimited have data type UTF8_String

- **data_type in Quaternion_Component**

  steward: **pds**
  namespace id: **pds**
  class: **Quaternion_Component**
  version: **1.1**

  - definition: **The data_type attribute provides the hardware representation used to store a value.**
  - value_data_type: **ASCII_Short_String_Collapsed** - Enumerated
  - minimum_characters: **1**
  - maximum_characters: **255**

- nillable: **false**
- permissible value
  ASCII_Real - The value is expressed using the data type ASCII_Real

- **data_type in Vector**

  steward: **pds**
  namespace id: **pds**
  class: **Vector**
  version: **1.1**

    - definition: **The data_type attribute provides the hardware representation used to store a value.**
    - value_data_type: **ASCII_Short_String_Collapsed** - Enumerated
    - minimum_characters: **1**
    - maximum_characters: **255**
    - nillable: **false**
    - permissible value
      ASCII_Real - The value is expressed using the data type ASCII_Real

- **date_time in Update_Entry**

  steward: **pds**
  namespace id: **pds**
  class: **Update_Entry**
  version: **1.1**

    - definition: **The date_time attribute provides the date and time of an event.**
    - value_data_type: **ASCII_Date_Time**
    - format: **YYYY-MM-DDTHH:MM:SS.SSS(Z)/YYYY-DOYTHH:MM:SS.SSS(Z)**
    - nillable: **false**

- **definition in DD_Attribute**

  steward: **ops**
  namespace id: **pds**
  class: **DD_Attribute**
  version: **1.1**

    - definition: **The definition attribute provides a statement, picture in words, or account that defines the term.**
    - value_data_type: **ASCII_Text_Preserved**
    - minimum_characters: **1**
    - nillable: **false**

- **definition in DD_Attribute_Full**

  steward: **ops**
  namespace id: **pds**
  class: **DD_Attribute_Full**
  version: **1.1**

    - definition: **The definition attribute provides a statement, picture in words, or account that defines the term.**
    - value_data_type: **ASCII_Text_Preserved**
    - minimum_characters: **1**
    - nillable: **false**

- **definition in DD_Class**

  steward: **ops**
  namespace id: **pds**
  class: **DD_Class**
  version: **1.1**

    - definition: **The definition attribute provides a statement, picture in words, or account that defines the term.**
    - value_data_type: **ASCII_Text_Preserved**
    - minimum_characters: **1**
    - nillable: **false**

- **definition in DD_Class_Full**

  steward: **ops**
  namespace id: **pds**
  class: **DD_Class_Full**
  version: **1.1**

    - definition: **The definition attribute provides a statement, picture in words, or account that defines the term.**

- value_data_type: **ASCII_Text_Preserved**
- minimum_characters: **1**
- nillable: **false**

- **definition in Terminological_Entry**

  steward: **pds**
  namespace id: **pds**
  class: **Terminological_Entry**
  version: **1.1**

  - definition: **The definition attribute provides a statement, picture in words, or account that defines the term.**
  - value_data_type: **UTF8_Text_Preserved**
  - minimum_characters: **1**
  - nillable: **false**

- **description in Information_Package**

  steward: **ops**
  namespace id: **pds**
  class: **Information_Package**
  version: **1.1**

  - definition: **The description attribute provides a statement, picture in words, or account that describes or is otherwise relevant to the object.**
  - value_data_type: **ASCII_Text_Preserved**
  - minimum_characters: **1**
  - nillable: **false**

- **description in Node**

  steward: **ops**
  namespace id: **pds**
  class: **Node**
  version: **1.1**

  - definition: **The description attribute provides a statement, picture in words, or account that describes or is otherwise relevant to the object.**
  - value_data_type: **ASCII_Text_Preserved**
  - minimum_characters: **1**
  - nillable: **false**

- **description in PDS_Affiliate**

  steward: **ops**
  namespace id: **pds**
  class: **PDS_Affiliate**
  version: **1.1**

  - definition: **The description attribute provides a statement, picture in words, or account that describes or is otherwise relevant to the object.**
  - value_data_type: **ASCII_Text_Preserved**
  - minimum_characters: **1**
  - nillable: **false**

- **description in PDS_Guest**

  steward: **ops**
  namespace id: **pds**
  class: **PDS_Guest**
  version: **1.1**

  - definition: **The description attribute provides a statement, picture in words, or account that describes or is otherwise relevant to the object.**
  - value_data_type: **ASCII_Text_Preserved**
  - minimum_characters: **1**
  - nillable: **false**

- **description in Software**

  steward: **ops**
  namespace id: **pds**
  class: **Software**
  version: **1.1**

- definition: **The description attribute provides a statement, picture in words, or account that describes or is otherwise relevant to the object.**
- value_data_type: **ASCII_Text_Preserved**
- minimum_characters: **1**
- nillable: **false**

- **description in Volume_PDS3**

  steward: **ops**
  namespace id: **pds**
  class: **Volume_PDS3**
  version: **1.1**

    - definition: **The description attribute provides a statement, picture in words, or account that describes or is otherwise relevant to the object.**
    - value_data_type: **ASCII_Text_Preserved**
    - minimum_characters: **1**
    - nillable: **false**

- **description in Volume_Set_PDS3**

  steward: **ops**
  namespace id: **pds**
  class: **Volume_Set_PDS3**
  version: **1.1**

    - definition: **The description attribute provides a statement, picture in words, or account that describes or is otherwise relevant to the object.**
    - value_data_type: **ASCII_Text_Preserved**
    - minimum_characters: **1**
    - nillable: **false**

- **description in Agency**

  steward: **pds**
  namespace id: **pds**
  class: **Agency**
  version: **1.1**

    - definition: **The description attribute provides a statement, picture in words, or account that describes or is otherwise relevant to the object.**
    - value_data_type: **ASCII_Text_Preserved**
    - minimum_characters: **1**
    - nillable: **false**

- **description in Array**

  steward: **pds**
  namespace id: **pds**
  class: **Array**
  version: **1.1**

    - definition: **The description attribute provides a statement, picture in words, or account that describes or is otherwise relevant to the object.**
    - value_data_type: **ASCII_Text_Preserved**
    - minimum_characters: **1**
    - nillable: **false**

- **description in Bundle**

  steward: **pds**
  namespace id: **pds**
  class: **Bundle**
  version: **1.1**

    - definition: **The description attribute provides a statement, picture in words, or account that describes or is otherwise relevant to the object.**
    - value_data_type: **ASCII_Text_Preserved**
    - minimum_characters: **1**
    - nillable: **false**

- **description in Citation_Information**

  steward: **pds**
  namespace id: **pds**

class: **Citation_Information**
version: **1.1**

- definition: **The description attribute provides a short (5KB or less) description of the product as a whole.**
- value_data_type: **UTF8_Text_Preserved**
- minimum_characters: **1**
- nillable: **false**
- schematron rule: **The description in Citation_Information must be greater than 1 and less than 5000 bytes (not counting spaces).**
- schematron rule: **In Product_Bundle a description is required in Citation_Information.**
- schematron rule: **In Product_Collection a description is required in Citation_Information.**
- schematron rule: **In Product_Document a description is required in Citation_Information.**
- schematron rule: **In Product_File_Text a description is required in Citation_Information.**

- **description in Collection**

  steward: **pds**
  namespace id: **pds**
  class: **Collection**
  version: **1.1**

  - definition: **The description attribute provides a statement, picture in words, or account that describes or is otherwise relevant to the object.**
  - value_data_type: **ASCII_Text_Preserved**
  - minimum_characters: **1**
  - nillable: **false**

- **description in Document**

  steward: **pds**
  namespace id: **pds**
  class: **Document**
  version: **1.1**

  - definition: **The description attribute provides a statement, picture in words, or account that describes or is otherwise relevant to the object.**
  - value_data_type: **ASCII_Text_Preserved**
  - minimum_characters: **1**
  - nillable: **false**

- **description in Document_Format**

  steward: **pds**
  namespace id: **pds**
  class: **Document_Format**
  version: **1.1**

  - definition: **The description attribute provides a statement, picture in words, or account that describes or is otherwise relevant to the object.**
  - value_data_type: **ASCII_Text_Preserved**
  - minimum_characters: **1**
  - nillable: **false**

- **description in Encoded_Byte_Stream**

  steward: **pds**
  namespace id: **pds**
  class: **Encoded_Byte_Stream**
  version: **1.1**

  - definition: **The description attribute provides a statement, picture in words, or account that describes or is otherwise relevant to the object.**
  - value_data_type: **ASCII_Text_Preserved**
  - minimum_characters: **1**
  - nillable: **false**

- **description in External_Reference**

  steward: **pds**
  namespace id: **pds**
  class: **External_Reference**
  version: **1.1**

  - definition: **The description attribute provides a statement, picture in words, or account that describes or is otherwise relevant to the object.**
  - value_data_type: **ASCII_Text_Preserved**

- minimum_characters: **1**
- nillable: **false**

- **description in Facility**

  steward: **pds**
  namespace id: **pds**
  class: **Facility**
  version: **1.1**

  - definition: **The description attribute provides a statement, picture in words, or account that describes or is otherwise relevant to the object.**
  - value_data_type: **ASCII_Text_Preserved**
  - minimum_characters: **1**
  - nillable: **false**

- **description in Field_Binary**

  steward: **pds**
  namespace id: **pds**
  class: **Field_Binary**
  version: **1.1**

  - definition: **The description attribute provides a statement, picture in words, or account that describes or is otherwise relevant to the object.**
  - value_data_type: **ASCII_Text_Preserved**
  - minimum_characters: **1**
  - nillable: **false**

- **description in Field_Bit**

  steward: **pds**
  namespace id: **pds**
  class: **Field_Bit**
  version: **1.1**

  - definition: **The description attribute provides a statement, picture in words, or account that describes or is otherwise relevant to the object.**
  - value_data_type: **ASCII_Text_Preserved**
  - minimum_characters: **1**
  - nillable: **false**

- **description in Field_Character**

  steward: **pds**
  namespace id: **pds**
  class: **Field_Character**
  version: **1.1**

  - definition: **The description attribute provides a statement, picture in words, or account that describes or is otherwise relevant to the object.**
  - value_data_type: **ASCII_Text_Preserved**
  - minimum_characters: **1**
  - nillable: **false**

- **description in Field_Delimited**

  steward: **pds**
  namespace id: **pds**
  class: **Field_Delimited**
  version: **1.1**

  - definition: **The description attribute provides a statement, picture in words, or account that describes or is otherwise relevant to the object.**
  - value_data_type: **ASCII_Text_Preserved**
  - minimum_characters: **1**
  - nillable: **false**

- **description in Field_Statistics**

  steward: **pds**
  namespace id: **pds**
  class: **Field_Statistics**
  version: **1.1**

- definition: **The description attribute provides a statement, picture in words, or account that describes or is otherwise relevant to the object.**
- value_data_type: **ASCII_Text_Preserved**
- minimum_characters: **1**
- nillable: **false**

- **description in Instrument**

  steward: **pds**
  namespace id: **pds**
  class: **Instrument**
  version: **1.1**

    - definition: **The description attribute provides a statement, picture in words, or account that describes or is otherwise relevant to the object.**
    - value_data_type: **ASCII_Text_Preserved**
    - minimum_characters: **1**
    - nillable: **false**

- **description in Instrument_Host**

  steward: **pds**
  namespace id: **pds**
  class: **Instrument_Host**
  version: **1.1**

    - definition: **The description attribute provides a statement, picture in words, or account that describes or is otherwise relevant to the object.**
    - value_data_type: **ASCII_Text_Preserved**
    - minimum_characters: **1**
    - nillable: **false**

- **description in Investigation**

  steward: **pds**
  namespace id: **pds**
  class: **Investigation**
  version: **1.1**

    - definition: **The description attribute provides a statement, picture in words, or account that describes or is otherwise relevant to the object.**
    - value_data_type: **ASCII_Text_Preserved**
    - minimum_characters: **1**
    - nillable: **false**

- **description in Modification_Detail**

  steward: **pds**
  namespace id: **pds**
  class: **Modification_Detail**
  version: **1.1**

    - definition: **The description attribute provides a statement, picture in words, or account that describes or is otherwise relevant to the object.**
    - value_data_type: **ASCII_Text_Preserved**
    - minimum_characters: **1**
    - nillable: **false**

- **description in Object_Statistics**

  steward: **pds**
  namespace id: **pds**
  class: **Object_Statistics**
  version: **1.1**

    - definition: **The description attribute provides a statement, picture in words, or account that describes or is otherwise relevant to the object.**
    - value_data_type: **ASCII_Text_Preserved**
    - minimum_characters: **1**
    - nillable: **false**

- **description in Observing_System**

  steward: **pds**
  namespace id: **pds**

class: **Observing_System**
version: **1.1**

- definition: **The description attribute provides a statement, picture in words, or account that describes or is otherwise relevant to the object.**
- value_data_type: **ASCII_Text_Preserved**
- minimum_characters: **1**
- nillable: **false**

- **description in Observing_System_Component**

steward: **pds**
namespace id: **pds**
class: **Observing_System_Component**
version: **1.1**

- definition: **The description attribute provides a statement, picture in words, or account that describes or is otherwise relevant to the object.**
- value_data_type: **ASCII_Text_Preserved**
- minimum_characters: **1**
- nillable: **false**

- **description in Other**

steward: **pds**
namespace id: **pds**
class: **Other**
version: **1.1**

- definition: **The description attribute provides a statement, picture in words, or account that describes or is otherwise relevant to the object.**
- value_data_type: **ASCII_Text_Preserved**
- minimum_characters: **1**
- nillable: **false**

- **description in Packed_Data_Fields**

steward: **pds**
namespace id: **pds**
class: **Packed_Data_Fields**
version: **1.1**

- definition: **The description attribute provides a statement, picture in words, or account that describes or is otherwise relevant to the object.**
- value_data_type: **ASCII_Text_Preserved**
- minimum_characters: **1**
- nillable: **false**

- **description in Parsable_Byte_Stream**

steward: **pds**
namespace id: **pds**
class: **Parsable_Byte_Stream**
version: **1.1**

- definition: **The description attribute provides a statement, picture in words, or account that describes or is otherwise relevant to the object.**
- value_data_type: **ASCII_Text_Preserved**
- minimum_characters: **1**
- nillable: **false**

- **description in Primary_Result_Summary**

steward: **pds**
namespace id: **pds**
class: **Primary_Result_Summary**
version: **1.1**

- definition: **The description attribute provides a statement, picture in words, or account that describes or is otherwise relevant to the object.**
- value_data_type: **ASCII_Short_String_Preserved**
- minimum_characters: **1**
- maximum_characters: **255**
- nillable: **false**

- **description in Quaternion**

  steward: **pds**
  namespace id: **pds**
  class: **Quaternion**
  version: **1.1**

    - definition: **The description attribute provides a statement, picture in words, or account that describes or is otherwise relevant to the object.**
    - value_data_type: **ASCII_Text_Preserved**
    - minimum_characters: **1**
    - nillable: **false**

- **description in Quaternion_Component**

  steward: **pds**
  namespace id: **pds**
  class: **Quaternion_Component**
  version: **1.1**

    - definition: **The description attribute provides a statement, picture in words, or account that describes or is otherwise relevant to the object.**
    - value_data_type: **ASCII_Text_Preserved**
    - minimum_characters: **1**
    - nillable: **false**

- **description in Resource**

  steward: **pds**
  namespace id: **pds**
  class: **Resource**
  version: **1.1**

    - definition: **The description attribute provides a statement, picture in words, or account that describes or is otherwise relevant to the object.**
    - value_data_type: **ASCII_Text_Preserved**
    - minimum_characters: **1**
    - nillable: **false**

- **description in Table_Base**

  steward: **pds**
  namespace id: **pds**
  class: **Table_Base**
  version: **1.1**

    - definition: **The description attribute provides a statement, picture in words, or account that describes or is otherwise relevant to the object.**
    - value_data_type: **ASCII_Text_Preserved**
    - minimum_characters: **1**
    - nillable: **false**

- **description in Target**

  steward: **pds**
  namespace id: **pds**
  class: **Target**
  version: **1.1**

    - definition: **The description attribute provides a statement, picture in words, or account that describes or is otherwise relevant to the object.**
    - value_data_type: **ASCII_Text_Preserved**
    - minimum_characters: **1**
    - nillable: **false**

- **description in Target_Identification**

  steward: **pds**
  namespace id: **pds**
  class: **Target_Identification**
  version: **1.1**

    - definition: **The description attribute provides additional information or clarification, as needed.**
    - value_data_type: **ASCII_Text_Preserved**
    - minimum_characters: **1**
    - nillable: **false**

- **description in Telescope**

  steward: **pds**
  namespace id: **pds**
  class: **Telescope**
  version: **1.1**

  - definition: **The description attribute provides a statement, picture in words, or account that describes or is otherwise relevant to the object.**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **description in Update**

  steward: **pds**
  namespace id: **pds**
  class: **Update**
  version: **1.1**

  - definition: **The description attribute provides a statement, picture in words, or account that describes or is otherwise relevant to the object.**
  - value_data_type: **ASCII_Text_Preserved**
  - minimum_characters: **1**
  - nillable: **false**

- **description in Update_Entry**

  steward: **pds**
  namespace id: **pds**
  class: **Update_Entry**
  version: **1.1**

  - definition: **The description attribute provides a statement, picture in words, or account that describes or is otherwise relevant to the object.**
  - value_data_type: **ASCII_Text_Preserved**
  - minimum_characters: **1**
  - nillable: **false**

- **description in Vector**

  steward: **pds**
  namespace id: **pds**
  class: **Vector**
  version: **1.1**

  - definition: **The description attribute provides a statement, picture in words, or account that describes or is otherwise relevant to the object.**
  - value_data_type: **ASCII_Text_Preserved**
  - minimum_characters: **1**
  - nillable: **false**

- **description in Vector_Component**

  steward: **pds**
  namespace id: **pds**
  class: **Vector_Component**
  version: **1.1**

  - definition: **The description attribute provides a statement, picture in words, or account that describes or is otherwise relevant to the object.**
  - value_data_type: **ASCII_Text_Preserved**
  - minimum_characters: **1**
  - nillable: **false**

- **description in Zip**

  steward: **pds**
  namespace id: **pds**
  class: **Zip**
  version: **1.1**

  - definition: **The description attribute provides a statement, picture in words, or account that describes or is**

otherwise relevant to the object.
- value_data_type: **ASCII_Text_Preserved**
- minimum_characters: **1**
- nillable: **false**

- **detector_number in Band_Bin**

  steward: **img**
  namespace id: **pds**
  class: **Band_Bin**
  version: **1.1**

  - definition: **The detector_number attribute provides the spectrometer detector number corresponding to a band of a spectral qube. Detector numbers are usually assigned consecutively from 1, in order of increasing wavelength.**
  - value_data_type: **ASCII_Integer**
  - minimum_value: **1**
  - nillable: **false**

- **directory_path_name in Document_File**

  steward: **pds**
  namespace id: **pds**
  class: **Document_File**
  version: **1.1**

  - definition: **The directory_path_name attribute provides a sequence of names that locates a directory in a hierarchy of directories.**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **discipline_name in Discipline_Facets**

  steward: **pds**
  namespace id: **pds**
  class: **Discipline_Facets**
  version: **1.1**

  - definition: **The discipline_name attribute describes the observing discipline (as opposed to a PDS Discipline Node Name, though the concepts and values are similar). Some of these values are, with respect to the PDS Nodes, inter-disciplinary and should be used when they are applicable in perference to the more restrictive values.**
  - value_data_type: **ASCII_Short_String_Collapsed** - Enumerated
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**
  - permissible values
    Atmospheres - atmospheric observations
    Fields - electric and magnetic field data
    Flux Measurements - photometry/polarimetry not resulting in images or spectra
    Imaging - any non-spectroscopic image, of any dimensionality (color, movies, etc.)
    Particles - ions, electrons, and anything not classified as 'dust'
    Ring-Moon Systems - other ring or ring-moon system data
    Small Bodies - other small body observations, including dust, shape models, etc.
    Spectroscopy - light wavelength/wave number spectra of any and all dimensionalities

- **document_name in Document**

  steward: **pds**
  namespace id: **pds**
  class: **Document**
  version: **1.1**

  - definition: **The document_title attribute provides the full name of the published document. This optional attribute is used only if the title in the identification area of the document product is not sufficient.**
  - value_data_type: **UTF8_Text_Preserved**
  - minimum_characters: **1**
  - nillable: **false**

- **document_standard_id in Document_File**

  steward: **pds**
  namespace id: **pds**
  class: **Document_File**

version: **1.1**

- definition: **The document_standard_id attribute provides the formal name of a standard used for the structure of a document file.**
- value_data_type: **ASCII_Short_String_Collapsed** - Enumerated
- minimum_characters: **1**
- maximum_characters: **255**
- nillable: **false**
- permissible values
  7-Bit ASCII Text - The Document_File contains simple text using only the 7-Bit ASCII character set. ANSI X3.4-1986.
  Encapsulated Postscript - The Document_File is governed by the external standard Encapsulated Postscript (EPS).
  GIF - The Document_File is governed by the standard Graphics Interchange Format (GIF).
  HTML 2.0 - The Document_File is governed by the standard HyperText Markup Language (HTML), IETF RFC 2070.
  HTML 3.2 - The Document_File is governed by the standard HyperText Markup Language (HTML), W3C Recommendation 14-Jan-1997.
  HTML 4.0 - The Document_File is governed by the standard HyperText Markup Language (HTML), ISO 8879:1986.
  HTML 4.01 - The Document_File is governed by the standard HyperText Markup Language (HTML), ISO/IEC 15445:2000.
  JPEG - The Document_File is governed by the standard Joint Photographic Experts Group (JPEG), ISO/IEC 10918-1.
  LaTEX - The Document_File is governed by the standard LaTEX, Version LaTeX2e.
  Microsoft Word - The Document_File is governed by a Microsoft Word standard, Microsoft Corporation.
  PDF - The Document_File is governed by the standard Portable Document Format (PDF), ISO 32000-1:2008.
  PDF/A - The Document_File is governed by the standard Portable Document Format / Archive (PDF/A), ISO 19005-1:2005.
  PNG - The Document_File is governed by the standard Portable Network Graphics (PNG), ISO/IEC 15948:2004.
  Postscript - The Document_File is governed by the standard Postscript (PS)
  Rich Text - The Document_File is governed by the standard Rich Text Format (RTF), Microsoft Corporation.
  TIFF - The Document_File is governed by the standard Tagged Image File Format (TIFF), Version 6.n, 1992.
  UTF-8 Text - The Document_File contains simple text using UTF-8 Unicode character encodings. RFC 3629.

- **doi in Document**

  steward: **pds**
  namespace id: **pds**
  class: **Document**
  version: **1.1**

  - definition: **The doi attribute provides the Digital Object Identifier for an object, assigned by the appropriate DOI System Registration Agency.**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **doi in External_Reference**

  steward: **pds**
  namespace id: **pds**
  class: **External_Reference**
  version: **1.1**

  - definition: **The doi attribute provides the Digital Object Identifier for an object, assigned by the appropriate DOI System Registration Agency.**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **domain in Science_Facets**

  steward: **pds**
  namespace id: **pds**
  class: **Science_Facets**
  version: **1.1**

  - definition: **The radial "zone' or "shell' of the target for which the observations were collected or which are represented in the product(s). The value may depend on wavelength_range and size of the target.**
  - value_data_type: **ASCII_Short_String_Collapsed** - Enumerated
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**
  - permissible values
    Atmosphere - an envelope of uncharged gases and particles surrounding the target and bound to it primarily by

gravitational forces

Heliosphere - the solar atmosphere extending roughly from the outer corona to the edge of the solar plasma at the heliopause, which separates primarily solar plasma from the interstellar medium.

Interior - the solid and/or liquid portion of a target enclosed by its surface.

Interstellar - the region between stars, which is outside of any star's heliopause.

Ionosphere - an envelope of plasma and charged particles surrounding the target and bound to it primarily by gravitational forces.

Magnetosphere - an envelope of charged particles, bounded on the upper side by the magnetopause and which is primarily under the control of the target body's magnetic field.

Surface - the boundary between the solid/liquid portion of a target and its atmosphere, ionosphere, or magnetosphere (or space).

- **dsn_station_number in Radio_Occultation**

  steward: **rings**
  namespace id: **rings**
  class: **Radio_Occultation**
  version: **1.1**

  - definition: *dsn_station_number identifies the receiving DSN station. Required in labels for radio occultations; not used for stellar occultations. Nillable in which case the nil_reason should be 'inapplicable'. *
  - value_data_type: **ASCII_Integer**
  - nillable: **false**

- **dsn_station_number in Radio_Occultation_Support**

  steward: **rings**
  namespace id: **rings**
  class: **Radio_Occultation_Support**
  version: **1.1**

  - definition: *dsn_station_number identifies the receiving DSN station. Required in labels for radio occultations; not used for stellar occultations. Nillable in which case the nil_reason should be 'inapplicable'. *
  - value_data_type: **ASCII_Integer**
  - nillable: **false**

- **earth_received_start_date_time in Telemetry_Parameters**

  steward: **img**
  namespace id: **img**
  class: **Telemetry_Parameters**
  version: **1.1**

  - definition: **The earth_received_start_date_time attribute provides the earliest time at which any component telemetry data for a particular product was received.**
  - value_data_type: **ASCII_Date_Time_UTC**
  - format: **YYYY-MM-DDTHH:MM:SS.SSSZ/YYYY-DOYTHH:MM:SS.SSSZ**
  - nillable: **false**

- **earth_received_start_time_utc in Radio_Occultation**

  steward: **rings**
  namespace id: **rings**
  class: **Radio_Occultation**
  version: **1.1**

  - definition: *earth_received_start_time_utc gives the UTC time corresponding to the earliest time for the data product at which telemetry or other photons were received on Earth. Optional for occultation data. Nillable if the observation is not an occultation in which case the nil_reason should be 'inapplicable'. *
  - value_data_type: **ASCII_Date_Time_UTC**
  - unit_of_measure_type: **Units_of_Time**
  - valid units: **day, hr, julian day, microseconds, min, ms, s, yr**
  - format: **YYYY-MM-DDTHH:MM:SS.SSSZ/YYYY-DOYTHH:MM:SS.SSSZ**
  - nillable: **false**

- **earth_received_stop_date_time in Telemetry_Parameters**

  steward: **img**
  namespace id: **img**
  class: **Telemetry_Parameters**
  version: **1.1**

  - definition: **The earth_received_stop_date_time attribute provides the latest time at which any component telemetry data for a particular product was received.**
  - value_data_type: **ASCII_Date_Time_UTC**
  - format: **YYYY-MM-DDTHH:MM:SS.SSSZ/YYYY-DOYTHH:MM:SS.SSSZ**

- nillable: **false**

- **earth_received_stop_time_utc in Radio_Occultation**

  steward: **rings**
  namespace id: **rings**
  class: **Radio_Occultation**
  version: **1.1**

  - definition: *earth_received_stop_time_utc gives the UTC time corresponding to the latest time for the data product at which telemetry or other photons were received on Earth. Optional for occultation data. Nillable if the observation is not an occultation in which case the nil_reason should be 'inapplicable'. *
  - value_data_type: **ASCII_Date_Time_UTC**
  - unit_of_measure_type: **Units_of_Time**
  - valid units: **day, hr, julian day, microseconds, min, ms, s, yr**
  - format: **YYYY-MM-DDTHH:MM:SS.SSSZ/YYYY-DOYTHH:MM:SS.SSSZ**
  - nillable: **false**

- **editor_list in Citation_Information**

  steward: **pds**
  namespace id: **pds**
  class: **Citation_Information**
  version: **1.1**

  - definition: **The editor_list attribute provides a list of people to be cited as the editors of the associated product. Lists are constructed with last names first and first and middle names and/or initials following. Initials are terminated by periods and delimited by single spaces. Suffixes (if applicable) follow everything else, after a final comma. Hyphenated names may be reduced to initials as "J.-P." Each person's full name is separated from the next by a semi-colon. There is no "and" before the last name.**
  - value_data_type: **UTF8_Text_Preserved**
  - minimum_characters: **1**
  - nillable: **false**

- **editor_list in Document**

  steward: **pds**
  namespace id: **pds**
  class: **Document**
  version: **1.1**

  - definition: **The editor_list attribute provides a list of people to be cited as the editors of the associated product. Lists are constructed with last names first and first and middle names and/or initials following. Initials are terminated by periods and delimited by single spaces. Suffixes (if applicable) follow everything else, after a final comma. Hyphenated names may be reduced to initials as "J.-P." Each person's full name is separated from the next by a semi-colon. There is no "and" before the last name.**
  - value_data_type: **UTF8_Text_Preserved**
  - minimum_characters: **1**
  - nillable: **false**

- **electronic_mail_address in PDS_Affiliate**

  steward: **ops**
  namespace id: **pds**
  class: **PDS_Affiliate**
  version: **1.1**

  - definition: **The electronic mail address attribute provides a multi-part email address: the first part (the user name), which identifies a unique user, is separated by an "at sign" from the host name, which uniquely identifies the mail server.**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **electronic_mail_address in PDS_Guest**

  steward: **ops**
  namespace id: **pds**
  class: **PDS_Guest**
  version: **1.1**

  - definition: **The electronic mail address attribute provides a multi-part email address: the first part (the user name), which identifies a unique user, is separated by an "at sign" from the host name, which uniquely identifies the mail server.**
  - value_data_type: **ASCII_Short_String_Collapsed**

- minimum_characters: **1**
- maximum_characters: **255**
- nillable: **false**

- **elements in Axis_Array**

  steward: **pds**
  namespace id: **pds**
  class: **Axis_Array**
  version: **1.1**

    - definition: **The elements attribute provides the count of the number of elements along an array axis.**
    - value_data_type: **ASCII_Integer**
    - minimum_value: **1**
    - nillable: **false**

- **encoding_standard_id in Encoded_Binary**

  steward: **pds**
  namespace id: **pds**
  class: **Encoded_Binary**
  version: **1.1**

    - definition: **The encoding_standard_id attribute provides the formal name of a standard used for the structure of an Encoded Byte Stream digital object.**
    - value_data_type: **ASCII_Short_String_Collapsed** - Enumerated
    - minimum_characters: **1**
    - maximum_characters: **255**
    - nillable: **false**
    - permissible value
      CCSDS Communication Protocols - The digital object is governed by the Consultative Committee for Space Data Systems (CCSDS) recommended standards on telecommand, telemetry and space datalink protocols.

- **encoding_standard_id in Encoded_Byte_Stream**

  steward: **pds**
  namespace id: **pds**
  class: **Encoded_Byte_Stream**
  version: **1.1**

    - definition: **The encoding_standard_id attribute provides the formal name of a standard used for the structure of an Encoded Byte Stream digital object.**
    - value_data_type: **ASCII_Short_String_Collapsed**
    - minimum_characters: **1**
    - maximum_characters: **255**
    - nillable: **false**

- **encoding_standard_id in Encoded_Header**

  steward: **pds**
  namespace id: **pds**
  class: **Encoded_Header**
  version: **1.1**

    - definition: **The encoding_standard_id attribute provides the formal name of a standard used for the structure of an Encoded Byte Stream digital object.**
    - value_data_type: **ASCII_Short_String_Collapsed** - Enumerated
    - minimum_characters: **1**
    - maximum_characters: **255**
    - nillable: **false**
    - permissible value
      TIFF - The Header is governed by the standard Tagged Image File Format (TIFF), Version 6.n, 1992.

- **encoding_standard_id in Encoded_Image**

  steward: **pds**
  namespace id: **pds**
  class: **Encoded_Image**
  version: **1.1**

    - definition: **The encoding_standard_id attribute provides the formal name of a standard used for the structure of an Encoded Byte Stream digital object.**
    - value_data_type: **ASCII_Short_String_Collapsed** - Enumerated
    - minimum_characters: **1**
    - maximum_characters: **255**
    - nillable: **false**

- permissible values
  GIF - The Encoded_Image is governed by the standard Graphics Interchange Format (GIF).
  J2C - The Encoded_Image is governed by the standard JPEG2000 compressed image codestream.
  JPEG - The Encoded_Image is governed by the standard Joint Photographic Experts Group (JPEG), ISO/IEC 10918-1.
  PDF - The Encoded_Image is governed by the standard Portable Document Format (PDF), ISO 32000-1:2008.
  PDF/A - The Encoded_Image is governed by the standard Portable Document Format / Archive (PDF/A), ISO 19005-1:2005.
  PNG - The Encoded_Image is governed by the standard Portable Network Graphics (PNG), ISO/IEC 15948:2004.
  TIFF - The Encoded_Image is governed by the standard Tagged Image File Format (TIFF), Version 6.n, 1992.

- **encoding_type in SPICE_Kernel**

  steward: **pds**
  namespace id: **pds**
  class: **SPICE_Kernel**
  version: **1.1**

  - definition: **The encoding_type attribute provides the storage format (binary or character).**
  - value_data_type: **ASCII_Short_String_Collapsed** - Enumerated
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**
  - permissible values
    Binary - The data object contains binary and possibly some character encoded data.
    Character - The data object contains only character encoded data, for example ASCII or UTF-8 encoded characters.

- **enumeration_flag in DD_Value_Domain**

  steward: **ops**
  namespace id: **pds**
  class: **DD_Value_Domain**
  version: **1.1**

  - definition: **The enumeration_flag attribute indicates whether there is an enumerated set of permissible values.**
  - value_data_type: **ASCII_Boolean**
  - nillable: **false**

- **enumeration_flag in DD_Value_Domain_Full**

  steward: **ops**
  namespace id: **pds**
  class: **DD_Value_Domain_Full**
  version: **1.1**

  - definition: **The enumeration_flag attribute indicates whether there is an enumerated set of permissible values.**
  - value_data_type: **ASCII_Boolean**
  - nillable: **false**

- **error_constant in Special_Constants**

  steward: **pds**
  namespace id: **pds**
  class: **Special_Constants**
  version: **1.1**

  - definition: **The error_constant attribute provides a value that indicates the original value was in error.**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **expected_packets in Telemetry_Parameters**

  steward: **img**
  namespace id: **img**
  class: **Telemetry_Parameters**
  version: **1.1**

  - definition: **The expected_packets attribute provides the total number of telemetry packets which constitute a complete data product, i.e., a data product without missing data.**
  - value_data_type: **ASCII_Integer**
  - minimum_value: **0**

- nillable: **false**

- **facet1 in Group_Facet1**

  steward: **pds**
  namespace id: **pds**
  class: **Group_Facet1**
  version: **1.1**

  - definition: **The facet1 attribute provides a sub-categorization under the discipline_name. The values are restricted according to the value of discipline_name.**
  - value_data_type: **ASCII_Short_String_Collapsed** - Enumerated
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**
  - permissible values
    2D - A 2D array in which each pixel value directly represents the spectral measurement at that point. The physical axes of the array align with the axes of the spectral data.
    Color - 3D data, typically with two spatial axes, where the third axis contains display color levels (RGB, CMYK, false color, etc.)
    Color Movie - 4D data, typically with two spatial, one color, and one temporal axis
    Dust Study - Dust measurements of all kinds and all targets
    Dynamical Properties - Orbital parameters, proper elements, etc.
    Electric - Electrical field measurements
    Electrons - Electron measurements
    Gas Study - Gas measurements of all kinds and targets
    Grayscale - 2D data, typically with two spatial axes
    Historical Reference - Discovery circumstances, reference collections
    Ions - Ion measurements
    Lightcurve - Light intensity variation with time, including rotational, secular, and occultation light curves
    Linear - A table representing a single spectrum
    Magnetic - Magnetic field measurements
    Meteoritics - Meteoroid streams, meteorite studies
    Meteorology - Meteorological observations
    Movie - 3D data, typically with two spatial and one temporal axis
    Neutrals - Neutral particle measurements
    Photometry - Photon measurements resulting in magnitudes, colors, etc.
    Physical Properties - Mass, density, albedo, etc.
    Polarimetry - Linear and circular polarization studies
    Production Rates - Quantification of mass loss from, e.g., the nucleus of a comet: molecular production rates, Af?, etc.
    Ring Compositional Map - 3D data, typically with two spatial axes, where the third axis uses either color or intensity to depict chemical or particle size variations within the rings.
    Ring Occultation Profile - Derived ring occultation data uniformly sampled along the radial axis. The occulted signal may be either, radio, solar, or stellar in origin.
    Ring Thermal Map - 3D data, typically with two spatial axes, where the third axis uses either color or intensity to depict temperature variations within the rings.
    Satellite Astrometry - Astrometry of natural satellite in ring systems
    Shape Model - Shape models, slope models, terrain models, elevation models, etc.
    Spectral Cube - Any 3D structure containing spectral data
    Spectral Image - A 2D image of a spectrum, as projected on a focal plane. There may be multiple orders present, and the axes of the spectrum/spectra typically do not align with the edges of the image.
    Structure - Atmospheric structure observations
    Tabulated - A table with one spectrum per record, possibly for a different target in each record
    Taxonomy - Physical and dynamical taxonomies of small bodies

- **facet2 in Group_Facet2**

  steward: **pds**
  namespace id: **pds**
  class: **Group_Facet2**
  version: **1.1**

  - definition: **The facet2 attribute provides a sub-categorization under the discipline_name. The values are restricted according to the value of discipline_name.**
  - value_data_type: **ASCII_Short_String_Collapsed** - Enumerated
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**
  - permissible values
    Background - slowly varying background field (typically at less than 100 Hz)
    Cosmic Ray - > 10 MeV
    Energetic - > 30keV
    Plasma - < 30keV
    Solar Energetic - 0.1-10MeV
    Waves - higher frequency field variations and/or oscillations (typically at greater than 100 Hz).

- **field_delimiter in Table_Delimited**

  steward: **pds**
  namespace id: **pds**
  class: **Table_Delimited**
  version: **1.1**

    - definition: **The field_delimiter attribute provides the character or characters that indicate the end of a character string.**
    - value_data_type: **ASCII_Short_String_Collapsed** - Enumerated
    - minimum_characters: **1**
    - maximum_characters: **255**
    - nillable: **false**
    - permissible values
      comma - Fields in the delimited table are delimited by ASCII commas (0x2C)
      horizontal tab - Fields in the delimited table are delimited by horizontal tab characters (0x09)
      semicolon - Fields in the delimited table are delimited by ASCII semicolons (0x3B)
      vertical bar - Fields in the delimited table are delimited by ASCII vertical bar characters ('|' - 0x7C)

- **field_format in Field_Binary**

  steward: **pds**
  namespace id: **pds**
  class: **Field_Binary**
  version: **1.1**

    - definition: **The field_format attribute gives the magnitude and precision of the data value. The standard POSIX string formats are used.**
    - value_data_type: **ASCII_Short_String_Collapsed**
    - minimum_characters: **1**
    - maximum_characters: **255**
    - nillable: **false**

- **field_format in Field_Bit**

  steward: **pds**
  namespace id: **pds**
  class: **Field_Bit**
  version: **1.1**

    - definition: **The field_format attribute gives the magnitude and precision of the data value. The standard POSIX string formats are used.**
    - value_data_type: **ASCII_Short_String_Collapsed**
    - minimum_characters: **1**
    - maximum_characters: **255**
    - nillable: **false**

- **field_format in Field_Character**

  steward: **pds**
  namespace id: **pds**
  class: **Field_Character**
  version: **1.1**

    - definition: **The field_format attribute gives the magnitude and precision of the data value. The standard POSIX string formats are used.**
    - value_data_type: **ASCII_Short_String_Collapsed**
    - minimum_characters: **1**
    - maximum_characters: **255**
    - nillable: **false**

- **field_format in Field_Delimited**

  steward: **pds**
  namespace id: **pds**
  class: **Field_Delimited**
  version: **1.1**

    - definition: **The field_format attribute gives the magnitude and precision of the data value. The standard POSIX string formats are used.**
    - value_data_type: **ASCII_Short_String_Collapsed**
    - minimum_characters: **1**
    - maximum_characters: **255**
    - nillable: **false**

- **field_length in Field_Binary**

steward: **pds**
namespace id: **pds**
class: **Field_Binary**
version: **1.1**

- definition: **The field_length attribute provides the number of bytes in the field.**
- value_data_type: **ASCII_Integer**
- minimum_value: **1**
- unit_of_measure_type: **Units_of_Storage**
- valid units: **byte**
- specified_unit_id: **byte**
- nillable: **false**

- **field_length in Field_Character**

steward: **pds**
namespace id: **pds**
class: **Field_Character**
version: **1.1**

- definition: **The field_length attribute provides the number of bytes in the field.**
- value_data_type: **ASCII_Integer**
- minimum_value: **1**
- unit_of_measure_type: **Units_of_Storage**
- valid units: **byte**
- specified_unit_id: **byte**
- nillable: **false**

- **field_location in Field_Binary**

steward: **pds**
namespace id: **pds**
class: **Field_Binary**
version: **1.1**

- definition: **The field_location attribute provides the starting byte for a field within a record or group, counting from '1'.**
- value_data_type: **ASCII_Integer**
- minimum_value: **1**
- unit_of_measure_type: **Units_of_Storage**
- valid units: **byte**
- specified_unit_id: **byte**
- nillable: **false**

- **field_location in Field_Character**

steward: **pds**
namespace id: **pds**
class: **Field_Character**
version: **1.1**

- definition: **The field_location attribute provides the starting byte for a field within a record or group, counting from '1'.**
- value_data_type: **ASCII_Integer**
- minimum_value: **1**
- unit_of_measure_type: **Units_of_Storage**
- valid units: **byte**
- specified_unit_id: **byte**
- nillable: **false**

- **field_number in Field**

steward: **pds**
namespace id: **pds**
class: **Field**
version: **1.1**

- definition: **The field_number attribute provides the position of a field, within a series of fields, counting from 1. If two fields within a record are physically separated by one or more groups, they have consecutive field numbers; the fields within the intervening group(s) are numbered separately. Fields within a group separated by one or more (sub)groups, will also have consecutive field numbers.**
- value_data_type: **ASCII_Integer**
- minimum_value: **1**
- nillable: **false**

- **fields in Group**

  steward: **pds**
  namespace id: **pds**
  class: **Group**
  version: **1.1**

  - definition: **The fields attribute provides a count of the total number of scalar fields directly associated with a group. Fields within (sub) groups of the group are not included in this count.**
  - value_data_type: **ASCII_Integer**
  - minimum_value: **0**
  - nillable: **false**

- **fields in Record**

  steward: **pds**
  namespace id: **pds**
  class: **Record**
  version: **1.1**

  - definition: **The fields attribute provides a count of the total number of scalar fields directly associated with a table record. Fields within groups within the record are not included in this count.**
  - value_data_type: **ASCII_Integer**
  - minimum_value: **0**
  - nillable: **false**

- **file_name in File**

  steward: **pds**
  namespace id: **pds**
  class: **File**
  version: **1.1**

  - definition: **The file_name attribute provides the name of a file.**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **file_size in File**

  steward: **pds**
  namespace id: **pds**
  class: **File**
  version: **1.1**

  - definition: **The file_size attribute provides the size of the file.**
  - value_data_type: **ASCII_NonNegative_Integer**
  - minimum_value: **0**
  - unit_of_measure_type: **Units_of_Storage**
  - valid units: **byte**
  - specified_unit_id: **byte**
  - nillable: **false**

- **files in Software_Binary**

  steward: **ops**
  namespace id: **pds**
  class: **Software_Binary**
  version: **1.1**

  - definition: **The files attribute provides the number of files.**
  - value_data_type: **ASCII_Integer**
  - minimum_value: **1**
  - nillable: **false**

- **files in Software_Script**

  steward: **ops**
  namespace id: **pds**
  class: **Software_Script**
  version: **1.1**

  - definition: **The files attribute provides the number of files.**
  - value_data_type: **ASCII_Integer**
  - minimum_value: **1**

- nillable: **false**

- **files in Software_Source**

  steward: **ops**
  namespace id: **pds**
  class: **Software_Source**
  version: **1.1**

    - definition: **The files attribute provides the number of files.**
    - value_data_type: **ASCII_Integer**
    - minimum_value: **1**
    - nillable: **false**

- **filter_number in Band_Bin**

  steward: **img**
  namespace id: **pds**
  class: **Band_Bin**
  version: **1.1**

    - definition: **The filter_number attribute of a spectral qube describes the physical location of a band (identified by the band_number) in a detector array. Filter 1 is on the leading edge of the array.**
    - value_data_type: **ASCII_Integer**
    - minimum_value: **1**
    - nillable: **false**

- **first_sampling_parameter_value in Uniformly_Sampled**

  steward: **pds**
  namespace id: **pds**
  class: **Uniformly_Sampled**
  version: **1.1**

    - definition: **The first_sampling_parameter_value element provides the first value in an ascending series and is therefore the minimum value at which a given data item was sampled.**
    - value_data_type: **ASCII_Real**
    - nillable: **false**

- **format_type in Document_Format**

  steward: **pds**
  namespace id: **pds**
  class: **Document_Format**
  version: **1.1**

    - definition: **The format type attribute indicates the digital format used.**
    - value_data_type: **ASCII_Short_String_Collapsed** - Enumerated
    - minimum_characters: **1**
    - maximum_characters: **255**
    - nillable: **false**
    - permissible values
      multiple file - The Document_Format has multiple files
      single file - The Document_Format has a single file

- **formation_rule in DD_Value_Domain**

  steward: **ops**
  namespace id: **pds**
  class: **DD_Value_Domain**
  version: **1.1**

    - definition: **The formation_rule attribute provides a 'user friendly' instruction for forming values.**
    - value_data_type: **ASCII_Text_Collapsed**
    - minimum_characters: **1**
    - nillable: **false**

- **formation_rule in DD_Value_Domain_Full**

  steward: **ops**
  namespace id: **pds**
  class: **DD_Value_Domain_Full**
  version: **1.1**

    - definition: **The formation_rule attribute provides a 'user friendly' instruction for forming values.**

- value_data_type: **ASCII_Text_Collapsed**
- minimum_characters: **1**
- nillable: **false**

- **frequency_band in Radio_Occultation**

  steward: **rings**
  namespace id: **rings**
  class: **Radio_Occultation**
  version: **1.1**

  - definition: *frequency_band is the one or two letter identifier of the frequency band. Required in labels for radio occultations; not used for stellar occultations. Nillable in which case the nil_reason should be 'inapplicable'. *
  - value_data_type: **ASCII_Short_String_Collapsed** - Enumerated
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**
  - permissible values
    C - Frequency range: 5.85 to 8.20 GHz
    D - Frequency range: 2.20 to 3.30 GHz
    E - Frequency range: 3.30 to 4.90 GHz
    F - Frequency range: 4.90 to 7.05 GHz
    G - Frequency range: 3.95 to 5.85 GHz
    H - Frequency range: 7.05 to 10.10 GHz
    K - Frequency range: 5.0 to 26.5 GHz
    Ka - Frequency range: 26.5 to 40.0 GHz
    Ku - Frequency range: 12.4 to 18.0 GHz
    Q - Frequency range: 33 to 50 GHz
    R - Frequency range: 1.70 to 2.60 GHz
    S - Frequency range: 2.60 to 3.95 GHz
    U - Frequency range: 40 to 60 GHz
    V - Frequency range: 50 to 75 GHz
    W - Frequency range: 75 to 110 GHz
    X - Frequency range: 8.2 to 12.4 GHz
    Y - Frequency range: 325 to 500 GHz

- **frequency_band in Radio_Occultation_Support**

  steward: **rings**
  namespace id: **rings**
  class: **Radio_Occultation_Support**
  version: **1.1**

  - definition: *frequency_band is the one or two letter identifier of the frequency band. Required in labels for radio occultations; not used for stellar occultations. Nillable in which case the nil_reason should be 'inapplicable'. *
  - value_data_type: **ASCII_Short_String_Collapsed** - Enumerated
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**
  - permissible values
    C - Frequency range: 5.85 to 8.20 GHz
    D - Frequency range: 2.20 to 3.30 GHz
    E - Frequency range: 3.30 to 4.90 GHz
    F - Frequency range: 4.90 to 7.05 GHz
    G - Frequency range: 3.95 to 5.85 GHz
    H - Frequency range: 7.05 to 10.10 GHz
    K - Frequency range: 5.0 to 26.5 GHz
    Ka - Frequency range: 26.5 to 40.0 GHz
    Ku - Frequency range: 12.4 to 18.0 GHz
    Q - Frequency range: 33 to 50 GHz
    R - Frequency range: 1.70 to 2.60 GHz
    S - Frequency range: 2.60 to 3.95 GHz
    U - Frequency range: 40 to 60 GHz
    V - Frequency range: 50 to 75 GHz
    W - Frequency range: 75 to 110 GHz
    X - Frequency range: 8.2 to 12.4 GHz
    Y - Frequency range: 325 to 500 GHz

- **full_name in Ingest_LDD**

  steward: **ops**
  namespace id: **pds**
  class: **Ingest_LDD**
  version: **1.1**

  - definition: **The full_name attribute provides the complete name for a person and includes titles and suffixes.**
  - value_data_type: **ASCII_Short_String_Collapsed**

- minimum_characters: **1**
- maximum_characters: **255**
- nillable: **false**

- **full_name in Subscriber_PDS3**

  steward: **ops**
  namespace id: **pds**
  class: **Subscriber_PDS3**
  version: **1.1**

  - definition: **The full_name attribute provides the complete name for a person and includes titles and suffixes.**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **full_name in Update_Entry**

  steward: **pds**
  namespace id: **pds**
  class: **Update_Entry**
  version: **1.1**

  - definition: **The full_name attribute provides the complete name for a person and includes titles and suffixes.**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **grating_position in Band_Bin**

  steward: **img**
  namespace id: **pds**
  class: **Band_Bin**
  version: **1.1**

  - definition: **The grating_position attribute of a spectral qube describes the grating position which corresponds to the band. Grating positions are usually assigned consecutively from 0, and increasing position causes increasing wavelength for each detector.**
  - value_data_type: **ASCII_Integer**
  - minimum_value: **0**
  - nillable: **false**

- **group_length in Group_Field_Binary**

  steward: **pds**
  namespace id: **pds**
  class: **Group_Field_Binary**
  version: **1.1**

  - definition: **The group_length attribute provides the total length, in bytes, of a repeating field and/or group structure. It is the number of bytes in the repeating fields/groups plus any embedded unused bytes that are also repeated multiplied by the number of repetitions.**
  - value_data_type: **ASCII_Integer**
  - minimum_value: **1**
  - unit_of_measure_type: **Units_of_Storage**
  - valid units: **byte**
  - specified_unit_id: **byte**
  - nillable: **false**

- **group_length in Group_Field_Character**

  steward: **pds**
  namespace id: **pds**
  class: **Group_Field_Character**
  version: **1.1**

  - definition: **The group_length attribute provides the total length, in bytes, of a repeating field and/or group structure. It is the number of bytes in the repeating fields/groups plus any embedded unused bytes that are also repeated multiplied by the number of repetitions.**
  - value_data_type: **ASCII_Integer**
  - minimum_value: **1**
  - unit_of_measure_type: **Units_of_Storage**
  - valid units: **byte**
  - specified_unit_id: **byte**

- nillable: **false**

- **group_location in Group_Field_Binary**

  steward: **pds**
  namespace id: **pds**
  class: **Group_Field_Binary**
  version: **1.1**

    - definition: **The group_location attribute provides the starting position for a Group_Field_Binary within the containing Record_Binary or Group_Field_Binary class, in bytes. Location "1" denotes the first byte of the containing class.**
    - value_data_type: **ASCII_Integer**
    - minimum_value: **1**
    - unit_of_measure_type: **Units_of_Storage**
    - valid units: **byte**
    - specified_unit_id: **byte**
    - nillable: **false**

- **group_location in Group_Field_Character**

  steward: **pds**
  namespace id: **pds**
  class: **Group_Field_Character**
  version: **1.1**

    - definition: **The group_location attribute provides the starting position for a Group_Field_Character within the containing Record_Character or Group_Field_Character class, in bytes. Location "1" denotes the first byte of the containing class.**
    - value_data_type: **ASCII_Integer**
    - minimum_value: **1**
    - unit_of_measure_type: **Units_of_Storage**
    - valid units: **byte**
    - specified_unit_id: **byte**
    - nillable: **false**

- **group_number in Group**

  steward: **pds**
  namespace id: **pds**
  class: **Group**
  version: **1.1**

    - definition: **The group_number attribute provides the position of a group, within a series of groups, counting from 1. If two groups within a record are physically separated by one or more fields, they have consecutive group numbers; the intervening fields are numbered separately. Groups within a parent group, but separated by one or more fields, will also have consecutive group numbers.**
    - value_data_type: **ASCII_Integer**
    - nillable: **false**

- **groups in Group**

  steward: **pds**
  namespace id: **pds**
  class: **Group**
  version: **1.1**

    - definition: **The groups attribute provides a count of the number of (sub)groups within the repeating structure of a group. (Subsub)groups within (sub)groups within the group are not included in this count.**
    - value_data_type: **ASCII_Integer**
    - minimum_value: **0**
    - nillable: **false**

- **groups in Record**

  steward: **pds**
  namespace id: **pds**
  class: **Record**
  version: **1.1**

    - definition: **The groups attribute provides a count of the total number of groups directly associated with a table record. Groups within groups within the record are not included in this count.**
    - value_data_type: **ASCII_Integer**
    - minimum_value: **0**
    - nillable: **false**

- **high_instrument_saturation in Special_Constants**

  steward: **pds**
  namespace id: **pds**
  class: **Special_Constants**
  version: **1.1**

  - definition: **The high_instrument_saturation attribute specifies a special value whose presence indicates the measuring instrument was saturated at the high end. The value must be less than the value of the valid_minimum attribute or more than the value of the valid_maximum attribute. Values of this attribute should be represented in the same data_type as the elements in the object with which the Special_Constants class is associated.**
  - value_data_type: **ASCII_Short_String_Collapsed** - Enumerated
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**
  - permissible values
    -32765 - conventional PDS3 and ISIS 2/3 qube value for a two byte signed integer data type
    255 - conventional ISIS 2/3 qube value for a one byte unsigned integer data type
    3 - conventional PDS3 qube value for any unsigned integer data type
    65534 - conventional ISIS 3 qube value for a two byte unsigned integer data type
    FF7FFFFE - conventional PDS3 and ISIS 2/3 qube value for a four byte IEEE floating point data type
    FFFCFFFF - conventional PDS3 and ISIS 2 qube value for a four byte VAX floating point data type

- **high_representation_saturation in Special_Constants**

  steward: **pds**
  namespace id: **pds**
  class: **Special_Constants**
  version: **1.1**

  - definition: **The high_representative_saturation attribute specifies a special value whose presence indicates the true value cannot be represented in the chosen data type and length – in this case being above the allowable range – which may happen during conversion from another data type. The value must be less than the value of the valid_minimum attribute or more than the value of the valid_maximum attribute. Values of this attribute should be represented in the same data_type as the elements in the object with which the Special_Constants class is associated.**
  - value_data_type: **ASCII_Short_String_Collapsed** - Enumerated
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**
  - permissible values
    -32764 - conventional PDS3 and ISIS 2/3 qube value for a two byte signed integer data type
    255 - conventional ISIS 2/3 qube value for a one byte unsigned integer data type
    4 - conventional PDS3 qube value for any unsigned integer data type
    65535 - conventional ISIS 3 qube value for a two byte unsigned integer data type
    FF7FFFFF - conventional PDS3 and ISIS 2/3 qube value for a four byte IEEE floating point data type
    FFFBFFFF - conventional PDS3 and ISIS 2 qube value for a four byte VAX floating point data type

- **highest_detectable_opacity in Radio_Occultation**

  steward: **rings**
  namespace id: **rings**
  class: **Radio_Occultation**
  version: **1.1**

  - definition: *highest_detectable_opacity indicates the sensitivity of a ring occultation data set to nearly opaque rings. It specifies the rough value for the largest normal ring opacity that can be detected in the data at the resolution provided, incorporating both statistical effects and calibration uncertainties. Strongly recommended in labels of ring occultation observations. Nillable if the observation is not a ring occultation in which case the nil_reason should be 'inapplicable'. Not intended as a value for a table field. *
  - value_data_type: **ASCII_Real**
  - nillable: **false**

- **highest_detectable_opacity in Stellar_Occultation**

  steward: **rings**
  namespace id: **rings**
  class: **Stellar_Occultation**
  version: **1.1**

  - definition: *highest_detectable_opacity indicates the sensitivity of a ring occultation data set to nearly opaque rings. It specifies the rough value for the largest normal ring opacity that can be detected in the data at the resolution provided, incorporating both statistical effects and calibration uncertainties. Strongly recommended in labels of ring occultation observations. Nillable if the observation is not a ring occultation in which case the nil_reason should be 'inapplicable'. Not intended as a value for a table field. *
  - value_data_type: **ASCII_Real**

- nillable: **false**

- **information_model_version in Identification_Area**

  steward: **pds**
  namespace id: **pds**
  class: **Identification_Area**
  version: **1.1**

  - definition: **The information_model_version attribute provides the version identification of the PDS Information Model on which the label and schema are based.**
  - value_data_type: **ASCII_Short_String_Collapsed** - Enumerated
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**
  - permissible value
    1.1.0.1 - This version of the information model is an operational release.

- **install_note in Software_Script**

  steward: **ops**
  namespace id: **pds**
  class: **Software_Script**
  version: **1.1**

  - definition: **The install note attribute provides a brief statement giving particulars about the installation of the software.**
  - value_data_type: **ASCII_Text_Preserved**
  - minimum_characters: **1**
  - nillable: **false**

- **institution_name in Node**

  steward: **ops**
  namespace id: **pds**
  class: **Node**
  version: **1.1**

  - definition: **The institution_name attribute provides the name of the associated institution.**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - pattern: **[a-zA-Z]{1}([-/, ._a-zA-Z0-9]*)**
  - nillable: **false**

- **institution_name in PDS_Affiliate**

  steward: **ops**
  namespace id: **pds**
  class: **PDS_Affiliate**
  version: **1.1**

  - definition: **The institution_name attribute provides the name of the associated institution.**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - pattern: **[a-zA-Z]{1}([-/, ._a-zA-Z0-9]*)**
  - nillable: **false**

- **instrument_desc in Instrument_PDS3**

  steward: **ops**
  namespace id: **pds**
  class: **Instrument_PDS3**
  version: **1.1**

  - definition: **The instrument_desc attribute describes a given instrument.**
  - value_data_type: **ASCII_Text_Preserved**
  - minimum_characters: **1**
  - nillable: **false**

- **instrument_host_desc in Instrument_Host_PDS3**

  steward: **ops**
  namespace id: **pds**

class: **Instrument_Host_PDS3**
version: **1.1**

- definition: **The instrument_host_desc provides a description of an instrument host**
- value_data_type: **ASCII_Text_Preserved**
- minimum_characters: **1**
- nillable: **false**

- **instrument_host_id in Instrument_Host_PDS3**

  steward: **ops**
  namespace id: **pds**
  class: **Instrument_Host_PDS3**
  version: **1.1**

  - definition: **The instrument_host_id attribute provides a unique identifier for the host on which an instrument is located. This host can be either a spacecraft or an earth base (e.g. earth).**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **instrument_host_name in Instrument_Host_PDS3**

  steward: **ops**
  namespace id: **pds**
  class: **Instrument_Host_PDS3**
  version: **1.1**

  - definition: **The instrument_host_name attribute provides the full name of the platform or facility upon which an instrument or other device is mounted. For example, the host can be a spacecraft, a ground-based telescope, or a laboratory.**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **instrument_host_type in Instrument_Host_PDS3**

  steward: **ops**
  namespace id: **pds**
  class: **Instrument_Host_PDS3**
  version: **1.1**

  - definition: **The instrument_host_type attribute provides the type of host on which an instrument is based. For example instrument is located on a spacecraft instrument_host_type attribute would have the value SPACECRAFT.**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **instrument_id in Instrument_PDS3**

  steward: **ops**
  namespace id: **pds**
  class: **Instrument_PDS3**
  version: **1.1**

  - definition: **The instrument id provides a formal name used to refer to an instrument.**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **instrument_name in Instrument_PDS3**

  steward: **ops**
  namespace id: **pds**
  class: **Instrument_PDS3**
  version: **1.1**

  - definition: **The instrument_name attribute provides a unique name for an instrument.**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**

- nillable: **false**

- **instrument_serial_number in Instrument_PDS3**

  steward: **ops**
  namespace id: **pds**
  class: **Instrument_PDS3**
  version: **1.1**

  - definition: **The instrument serial number element provides the manufacturer's serial number assigned to an instrument. This number may be used to uniquely identify a particular instrument for tracing its components or determining its calibration history, for example.**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **instrument_type in Instrument_PDS3**

  steward: **ops**
  namespace id: **pds**
  class: **Instrument_PDS3**
  version: **1.1**

  - definition: **The instrument_type attribute identifies the type of an instrument. Example values: POLARIMETER SPECTROMETER**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **instrument_version_id in Instrument_PDS3**

  steward: **ops**
  namespace id: **pds**
  class: **Instrument_PDS3**
  version: **1.1**

  - definition: **The Instrument_Version_Id element identifies the specific model of an instrument used to obtain data. For example, this keyword could be used to distinguish between an engineering model of a camera used to acquire test data, and a flight model of a camera used to acquire science data during a mission.**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **invalid_constant in Special_Constants**

  steward: **pds**
  namespace id: **pds**
  class: **Special_Constants**
  version: **1.1**

  - definition: **The invalid_constant attribute provides a value that indicates the original value was outside the valid range for the parameter.**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **kernel_type in SPICE_Kernel**

  steward: **pds**
  namespace id: **pds**
  class: **SPICE_Kernel**
  version: **1.1**

  - definition: **The kernel_type attribute identifies the type of SPICE kernel.**
  - value_data_type: **ASCII_Short_String_Collapsed** - Enumerated
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**
  - permissible values
    CK - SPICE_Kernel is type CK (orientation kernel)
    DBK - SPICE_Kernel is type DBK (database kernel)
    DSK - SPICE_Kernel is type DSK (digital shape kernel)

EK - SPICE_Kernel is type EK (events kernel)
FK - SPICE_Kernel is type FK (frames kernel)
IK - SPICE_Kernel is type IK (instrument kernel)
LSK - SPICE_Kernel is type LSK (leap seconds kernel)
MK - SPICE_Kernel is type MK (meta kernel names SPICE kernels to be used together)
PCK - SPICE_Kernel is type PCL (planetary constants kernel)
SCLK - SPICE_Kernel is type SCLK (spacecraft clock kernel)
SPK - SPICE_Kernel is type SPK (ephemeris kernel)

- **keyword in Citation_Information**

  steward: **pds**
  namespace id: **pds**
  class: **Citation_Information**
  version: **1.1**

  - definition: **The keyword attribute provides one or more words to be used for keyword search.**
  - value_data_type: **UTF8_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **language in Terminological_Entry**

  steward: **pds**
  namespace id: **pds**
  class: **Terminological_Entry**
  version: **1.1**

  - definition: **The language attribute provides the language used for definition and designation of the term.**
  - value_data_type: **ASCII_Short_String_Collapsed** - Enumerated
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**
  - permissible values
    English - Values in Terminological_Entry are in English
    Russian - Values in Terminological_Entry are in Russian

- **last_modification_date_time in Ingest_LDD**

  steward: **ops**
  namespace id: **pds**
  class: **Ingest_LDD**
  version: **1.1**

  - definition: **The last_modification_date_time attribute gives the most recent date and time that a change was made.**
  - value_data_type: **ASCII_Date_Time_YMD**
  - format: **YYYY-MM-DDTHH:MM:SS.SSS(Z)**
  - nillable: **false**

- **last_sampling_parameter_value in Uniformly_Sampled**

  steward: **pds**
  namespace id: **pds**
  class: **Uniformly_Sampled**
  version: **1.1**

  - definition: **The last_sampling_parameter_value element provides the last value in an ascending series and is therefore the maximum value at which a given data item was sampled.**
  - value_data_type: **ASCII_Real**
  - nillable: **false**

- **ldd_version_id in Ingest_LDD**

  steward: **ops**
  namespace id: **pds**
  class: **Ingest_LDD**
  version: **1.1**

  - definition: **The ldd_version_id attribute provides the version of the Local Data Dictionary.**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **ldd_version_id in XML_Schema**

  steward: **pds**
  namespace id: **pds**
  class: **XML_Schema**
  version: **1.1**

    - definition: **The ldd_version_id attribute provides the version of the Local Data Dictionary.**
    - value_data_type: **ASCII_Short_String_Collapsed**
    - minimum_characters: **1**
    - maximum_characters: **255**
    - nillable: **false**

- **lid_reference in Bundle_Member_Entry**

  steward: **pds**
  namespace id: **pds**
  class: **Bundle_Member_Entry**
  version: **1.1**

    - definition: **The lid_reference attribute provides the logical_identifier for a product.**
    - value_data_type: **ASCII_LID**
    - minimum_characters: **14**
    - maximum_characters: **255**
    - format: **urn:nasa:pds:xxxx**
    - nillable: **false**

- **lid_reference in Internal_Reference**

  steward: **pds**
  namespace id: **pds**
  class: **Internal_Reference**
  version: **1.1**

    - definition: **The lid_reference attribute provides the logical_identifier for a product.**
    - value_data_type: **ASCII_LID**
    - minimum_characters: **14**
    - maximum_characters: **255**
    - format: **urn:nasa:pds:xxxx**
    - nillable: **false**
    - schematron rule: **The number of colons found in the lid_reference is valid.**
    - schematron rule: **The value of the attribute lid_reference must start with 'urn:nasa:pds:'**
    - schematron rule: **The value of the attribute lid_reference must not include a value that contains '::' followed by version id**
    - schematron rule: **The value of the attribute lid_reference must not include a value that contains '::' followed by version id**
    - schematron rule: **The number of colons found in lid_reference is validated.**
    - schematron rule: **The value of the attribute lid_reference must start with 'urn:nasa:pds:'**

- **lidvid_reference in Bundle_Member_Entry**

  steward: **pds**
  namespace id: **pds**
  class: **Bundle_Member_Entry**
  version: **1.1**

    - definition: **The lidvid_reference attribute provides the logical_identifier plus version_id, which uniquely identifies a product.**
    - value_data_type: **ASCII_LIDVID**
    - minimum_characters: **19**
    - maximum_characters: **255**
    - format: **urn:nasa:pds:xxxx::M.n**
    - nillable: **false**

- **lidvid_reference in Internal_Reference**

  steward: **pds**
  namespace id: **pds**
  class: **Internal_Reference**
  version: **1.1**

    - definition: **The lidvid_reference attribute provides the logical_identifier plus version_id, which uniquely identifies a product.**
    - value_data_type: **ASCII_LIDVID**
    - minimum_characters: **19**
    - maximum_characters: **255**

- format: **urn:nasa:pds:xxxx::M.n**
- nillable: **false**
- schematron rule: **The number of colons found in the lidvid_reference is valid.**
- schematron rule: **The value of the attribute lidvid_reference must start with 'urn:nasa:pds:'**
- schematron rule: **The value of the attribute lidvid_reference must include a value that contains '::' followed by version id**
- schematron rule: **The number of colons found in lidvid_reference is validated.**
- schematron rule: **The value of the attribute lidvid_reference must start with 'urn:nasa:pds:'**
- schematron rule: **The value of the attribute lidvid_reference must include a value that contains '::' followed by version id**

- **light_source_incidence_angle in Radio_Occultation**

  steward: **rings**
  namespace id: **rings**
  class: **Radio_Occultation**
  version: **1.1**

  - definition: *light_source_incidence_angle is an angle measured from the local surface normal vector to the direction of a photon arriving from the light source. For rings, the normal vector is that on the same side of the rings as the light source, so values always range between 0 and 90 in units of degrees. The value is always equal to 90 - %7C observed_ring_elevation %7C This will enable users to perform database searches based on the effective ring opening angle when they are not concerned about the the distinction between north-side and southside viewpoints. We have included the 'light source' prefix to the term so that this quantity is not confused with 'incidence angle', a term that is generally associated with sunlight rather than stars or radio transmitters. Required in the label if the value is constant for the observation. If the angle varies for the observation, the min and max attributes are required in the label. Optional as a field in the data table. Nillable, in which case the nil_reason should be 'inapplicable'. *
  - value_data_type: **ASCII_Real**
  - minimum_value: **-90**
  - maximum_value: **90**
  - unit_of_measure_type: **Units_of_Angle**
  - valid units: **arcmin, arcsec, deg, hr, mrad, rad**
  - nillable: **false**

- **light_source_incidence_angle in Stellar_Occultation**

  steward: **rings**
  namespace id: **rings**
  class: **Stellar_Occultation**
  version: **1.1**

  - definition: *light_source_incidence_angle is an angle measured from the local surface normal vector to the direction of a photon arriving from the light source. For rings, the normal vector is that on the same side of the rings as the light source, so values always range between 0 and 90 in units of degrees. The value is always equal to 90 - %7C observed_ring_elevation %7C This will enable users to perform database searches based on the effective ring opening angle when they are not concerned about the the distinction between north-side and southside viewpoints. We have included the 'light source' prefix to the term so that this quantity is not confused with 'incidence angle', a term that is generally associated with sunlight rather than stars or radio transmitters. Required in the label if the value is constant for the observation. If the angle varies for the observation, the min and max attributes are required in the label. Optional as a field in the data table. Nillable, in which case the nil_reason should be 'inapplicable'. *
  - value_data_type: **ASCII_Real**
  - minimum_value: **-90**
  - maximum_value: **90**
  - unit_of_measure_type: **Units_of_Angle**
  - valid units: **arcmin, arcsec, deg, hr, mrad, rad**
  - nillable: **false**

- **line_display_direction in Display_2D_Image**

  steward: **pds**
  namespace id: **pds**
  class: **Display_2D_Image**
  version: **1.1**

  - definition: **The line_display_direction element is the preferred orientation of lines within an image for viewing on a display device. Note that if this keyword is present in a label, the sample_display_direction keyword must also be present and must contain a value orthogonal to the value selected for this keyword.**
  - value_data_type: **ASCII_Short_String_Collapsed** - Enumerated
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**
  - permissible values
    Down - The preferred orientation of lines within an image for viewing on a display device is Down
    Up - The preferred orientation of lines within an image for viewing on a display device is Up

- **local_identifier in DD_Association**

steward: **ops**
namespace id: **pds**
class: **DD_Association**
version: **1.1**

- definition: **The local_identifier attribute provides a character string which uniquely identifies the containing object within the label.**
- value_data_type: **ASCII_Short_String_Collapsed**
- minimum_characters: **1**
- maximum_characters: **255**
- nillable: **false**

- **local_identifier in DD_Attribute**

steward: **ops**
namespace id: **pds**
class: **DD_Attribute**
version: **1.1**

- definition: **The local_identifier attribute provides a character string which uniquely identifies the containing object within the label.**
- value_data_type: **ASCII_Short_String_Collapsed**
- minimum_characters: **1**
- maximum_characters: **255**
- nillable: **false**

- **local_identifier in DD_Attribute_Full**

steward: **ops**
namespace id: **pds**
class: **DD_Attribute_Full**
version: **1.1**

- definition: **The local_identifier attribute provides a character string which uniquely identifies the containing object within the label.**
- value_data_type: **ASCII_Short_String_Collapsed**
- minimum_characters: **1**
- maximum_characters: **255**
- nillable: **false**

- **local_identifier in DD_Class**

steward: **ops**
namespace id: **pds**
class: **DD_Class**
version: **1.1**

- definition: **The local_identifier attribute provides a character string which uniquely identifies the containing object within the label.**
- value_data_type: **ASCII_Short_String_Collapsed**
- minimum_characters: **1**
- maximum_characters: **255**
- nillable: **false**

- **local_identifier in DD_Class_Full**

steward: **ops**
namespace id: **pds**
class: **DD_Class_Full**
version: **1.1**

- definition: **The local_identifier attribute provides a character string which uniquely identifies the containing object within the label.**
- value_data_type: **ASCII_Short_String_Collapsed**
- minimum_characters: **1**
- maximum_characters: **255**
- nillable: **false**

- **local_identifier in Subscriber_PDS3**

steward: **ops**
namespace id: **pds**
class: **Subscriber_PDS3**
version: **1.1**

- definition: **The local_identifier attribute provides a character string which uniquely identifies the containing**

object within the label.
- value_data_type: **ASCII_Short_String_Collapsed**
- minimum_characters: **1**
- maximum_characters: **255**
- nillable: **false**

- **local_identifier in Axis_Array**

  steward: **pds**
  namespace id: **pds**
  class: **Axis_Array**
  version: **1.1**

  - definition: **The local_identifier attribute provides a character string which uniquely identifies the containing object within the label.**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **local_identifier in Byte_Stream**

  steward: **pds**
  namespace id: **pds**
  class: **Byte_Stream**
  version: **1.1**

  - definition: **The local_identifier attribute provides a character string which uniquely identifies the containing object within the label.**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **local_identifier in Field_Statistics**

  steward: **pds**
  namespace id: **pds**
  class: **Field_Statistics**
  version: **1.1**

  - definition: **The local_identifier attribute provides a character string which uniquely identifies the containing object within the label.**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **local_identifier in File**

  steward: **pds**
  namespace id: **pds**
  class: **File**
  version: **1.1**

  - definition: **The local_identifier attribute provides a character string which uniquely identifies the containing object within the label.**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **local_identifier in Geometry**

  steward: **pds**
  namespace id: **pds**
  class: **Geometry**
  version: **1.1**

  - definition: **The local_identifier attribute provides a character string which uniquely identifies the containing object within the label.**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **local_identifier in Object_Statistics**

  steward: **pds**
  namespace id: **pds**
  class: **Object_Statistics**
  version: **1.1**

    - definition: **The local_identifier attribute provides a character string which uniquely identifies the containing object within the label.**
    - value_data_type: **ASCII_Short_String_Collapsed**
    - minimum_characters: **1**
    - maximum_characters: **255**
    - nillable: **false**

- **local_identifier in Quaternion**

  steward: **pds**
  namespace id: **pds**
  class: **Quaternion**
  version: **1.1**

    - definition: **The local_identifier attribute provides a character string which uniquely identifies the containing object within the label.**
    - value_data_type: **ASCII_Short_String_Collapsed**
    - minimum_characters: **1**
    - maximum_characters: **255**
    - nillable: **false**

- **local_identifier in Update**

  steward: **pds**
  namespace id: **pds**
  class: **Update**
  version: **1.1**

    - definition: **The local_identifier attribute provides a character string which uniquely identifies the containing object within the label.**
    - value_data_type: **ASCII_Short_String_Collapsed**
    - minimum_characters: **1**
    - maximum_characters: **255**
    - nillable: **false**

- **local_identifier in Vector**

  steward: **pds**
  namespace id: **pds**
  class: **Vector**
  version: **1.1**

    - definition: **The local_identifier attribute provides a character string which uniquely identifies the containing object within the label.**
    - value_data_type: **ASCII_Short_String_Collapsed**
    - minimum_characters: **1**
    - maximum_characters: **255**
    - nillable: **false**

- **local_mean_solar_time in Time_Coordinates**

  steward: **pds**
  namespace id: **pds**
  class: **Time_Coordinates**
  version: **1.1**

    - definition: **The local_mean_solar_time attribute provides the hour angle of the fictitious mean Sun at a fixed point on a rotating solar system body.**
    - value_data_type: **ASCII_Short_String_Collapsed**
    - minimum_characters: **8**
    - maximum_characters: **255**
    - nillable: **false**

- **local_true_solar_time in Time_Coordinates**

  steward: **pds**
  namespace id: **pds**
  class: **Time_Coordinates**

version: **1.1**

- definition: **The local_true_solar_time (LTST) attribute provides the local time on a rotating solar system body where LTST is 12 h at the sub-solar point (SSP) and increases 1 h for each 15 degree increase in east longitude away from the SSP for prograde rotation.**
- value_data_type: **ASCII_Short_String_Collapsed**
- minimum_characters: **8**
- maximum_characters: **255**
- nillable: **false**

- **logical_identifier in Identification_Area**

  steward: **pds**
  namespace id: **pds**
  class: **Identification_Area**
  version: **1.1**

  - definition: **A logical identifier identifies the set of all versions of an object. It is an object identifier without a version.**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**
  - schematron rule: **In the number of colons found in logical_identifier is validated.**
  - schematron rule: **The attribute pds:product_class must match parent product class name.**
  - schematron rule: **The value of the attribute logical_identifier must only contain lower-case letters'**
  - schematron rule: **The value of the attribute logical_identifier must start with 'urn:nasa:pds:'**
  - schematron rule: **The value of the attribute logical_identifier must not include a value that contains '::'**
  - schematron rule: **In Product_Bundle the number of colons in logical_identifier is valid.**
  - schematron rule: **In Product_Collection, the number of colons found in logical identifier is validated.**

- **low_instrument_saturation in Special_Constants**

  steward: **pds**
  namespace id: **pds**
  class: **Special_Constants**
  version: **1.1**

  - definition: **The low_instrument_saturation attribute specifies a special value whose presence indicates the measuring instrument was saturated at the low end. The value must be less than the value of the valid_minimum attribute. Values of this attribute should be represented in the same data_type as the elements in the object with which the Special_Constants class is associated.**
  - value_data_type: **ASCII_Short_String_Collapsed** - Enumerated
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**
  - permissible values
    -32766 - conventional PDS3 and ISIS 2/3 qube value for a two byte signed integer data type
    0 - conventional ISIS 2/3 qube value for a one byte unsigned integer data type
    2 - conventional PDS3 and ISIS 3 qube value for any unsigned integer data type
    FF7FFFFD - conventional PDS3 and ISIS 2/3 qube value for a four byte IEEE floating point data type
    FFFDFFFF - conventional PDS3 and ISIS 2 qube value for a four byte VAX floating point data type

- **low_representation_saturation in Special_Constants**

  steward: **pds**
  namespace id: **pds**
  class: **Special_Constants**
  version: **1.1**

  - definition: **The low_representative_saturation attribute specifies a special value whose presence indicates the true value cannot be represented in the chosen data type and length – in this case being below the allowable range – which may happen during conversion from another data type. The value must be less than the value of the valid_minimum attribute. Values of this attribute should be represented in the same data_type as the elements in the object with which the Special_Constants class is associated.**
  - value_data_type: **ASCII_Short_String_Collapsed** - Enumerated
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**
  - permissible values
    -32767 - conventional ISIS qube value for any two byte signed integer data type
    1 - conventional ISIS qube value for any unsigned data type
    16#FF7FFFFC# - Not VAX
    16#FFFEFFFF# - VAX

- **lowest_detectable_opacity in Radio_Occultation**

steward: **rings**
namespace id: **rings**
class: **Radio_Occultation**
version: **1.1**

- definition: *lowest_detectable_opacity indicates the sensitivity of a ring occultation data set to nearly opaque rings. It specifies the rough value for the smallest normal ring opacity that can be detected in the data at the resolution provided, incorporating both statistical effects and calibration uncertainties. Strongly recommended in labels of ring occultation observations. Nillable if the observation is not a ring occultation in which case the nil_reason should be 'inapplicable'. Not intended as a value for a table field. *
- value_data_type: **ASCII_Real**
- nillable: **false**

- **lowest_detectable_opacity in Stellar_Occultation**

  steward: **rings**
  namespace id: **rings**
  class: **Stellar_Occultation**
  version: **1.1**

  - definition: *lowest_detectable_opacity indicates the sensitivity of a ring occultation data set to nearly opaque rings. It specifies the rough value for the smallest normal ring opacity that can be detected in the data at the resolution provided, incorporating both statistical effects and calibration uncertainties. Strongly recommended in labels of ring occultation observations. Nillable if the observation is not a ring occultation in which case the nil_reason should be 'inapplicable'. Not intended as a value for a table field. *
  - value_data_type: **ASCII_Real**
  - nillable: **false**

- **maximum in Field_Statistics**

  steward: **pds**
  namespace id: **pds**
  class: **Field_Statistics**
  version: **1.1**

  - definition: **The maximum attribute provides the largest stored value which appears in the field over all records (empty fields and Special_Constants values are excluded).**
  - value_data_type: **ASCII_Real**
  - nillable: **false**

- **maximum in Object_Statistics**

  steward: **pds**
  namespace id: **pds**
  class: **Object_Statistics**
  version: **1.1**

  - definition: **The maximum attribute provides the largest value which appears in the stored array after application of any bit mask (Special_Constants values are excluded).**
  - value_data_type: **ASCII_Real**
  - nillable: **false**

- **maximum_characters in DD_Value_Domain**

  steward: **ops**
  namespace id: **pds**
  class: **DD_Value_Domain**
  version: **1.1**

  - definition: **The maximum_characters attribute provides the upper, inclusive bound on the number of characters.**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **maximum_characters in DD_Value_Domain_Full**

  steward: **ops**
  namespace id: **pds**
  class: **DD_Value_Domain_Full**
  version: **1.1**

  - definition: **The maximum_characters attribute provides the upper, inclusive bound on the number of characters.**
  - value_data_type: **ASCII_Short_String_Collapsed**

- minimum_characters: **1**
- maximum_characters: **255**
- nillable: **false**

- **maximum_field_length in Field_Delimited**

  steward: **pds**
  namespace id: **pds**
  class: **Field_Delimited**
  version: **1.1**

  - definition: **The maximum_field_length attribute sets an upper, inclusive bound on the number of bytes in the field.**
  - value_data_type: **ASCII_Integer**
  - minimum_value: **1**
  - unit_of_measure_type: **Units_of_Storage**
  - valid units: **byte**
  - specified_unit_id: **byte**
  - nillable: **false**

- **maximum_light_source_incidence_angle in Radio_Occultation**

  steward: **rings**
  namespace id: **rings**
  class: **Radio_Occultation**
  version: **1.1**

  - definition: *maximum_light_source_incidence_angle specifes the largest value for observed_ring_elevation in the observation. Only used if the value is not constant over the observation. Values range from 0 to %2B90 in units of degrees. Not intended for use in the data file. Nillable, in which case the nil_reason should be 'inapplicable'. *
  - value_data_type: **ASCII_Real**
  - minimum_value: **0**
  - maximum_value: **90**
  - unit_of_measure_type: **Units_of_Angle**
  - valid units: **arcmin, arcsec, deg, hr, mrad, rad**
  - nillable: **false**

- **maximum_observed_event_time in Radio_Occultation_Support**

  steward: **rings**
  namespace id: **rings**
  class: **Radio_Occultation_Support**
  version: **1.1**

  - definition: *maximum_observed_event_time indicates the value for latest time in the described data, and is given in observed_event_tdb format. *
  - value_data_type: **ASCII_Real**
  - unit_of_measure_type: **Units_of_Time**
  - valid units: **day, hr, julian day, microseconds, min, ms, s, yr**
  - nillable: **false**

- **maximum_observed_ring_azimuth in Radio_Occultation**

  steward: **rings**
  namespace id: **rings**
  class: **Radio_Occultation**
  version: **1.1**

  - definition: *maximum_observed_ring_azimuth specifes the largest value for observed_ring_azimuth in the data file. Values range from 0 to 360 in units of degrees. Required in label files for ring occultation data. Nillable if the observation is not a ring occultation in which case the nil_reason should be 'inapplicable'. *
  - value_data_type: **ASCII_Real**
  - minimum_value: **0**
  - maximum_value: **360**
  - unit_of_measure_type: **Units_of_Angle**
  - valid units: **arcmin, arcsec, deg, hr, mrad, rad**
  - nillable: **false**

- **maximum_observed_ring_azimuth in Stellar_Occultation**

  steward: **rings**
  namespace id: **rings**
  class: **Stellar_Occultation**
  version: **1.1**

  - definition: *maximum_observed_ring_azimuth specifes the largest value for observed_ring_azimuth in the data file.

Values range from 0 to 360 in units of degrees. Required in label files for ring occultation data. Nillable if the observation is not a ring occultation in which case the nil_reason should be 'inapplicable'. *

- value_data_type: **ASCII_Real**
- minimum_value: **0**
- maximum_value: **360**
- unit_of_measure_type: **Units_of_Angle**
- valid units: **arcmin, arcsec, deg, hr, mrad, rad**
- nillable: **false**

- **maximum_observed_ring_elevation in Radio_Occultation**

  steward: **rings**
  namespace id: **rings**
  class: **Radio_Occultation**
  version: **1.1**

  - definition: *maximum_observed_ring_elevation specifes the largest value for observed_ring_elevation in the data file. Only used if the value is not constant over the observation. Values range from -90 to %2B90 in units of degrees. Not intended for use in the data file. Nillable, in which case the nil_reason should be 'inapplicable'. *
  - value_data_type: **ASCII_Real**
  - minimum_value: **-90**
  - maximum_value: **90**
  - unit_of_measure_type: **Units_of_Angle**
  - valid units: **arcmin, arcsec, deg, hr, mrad, rad**
  - nillable: **false**

- **maximum_observed_ring_elevation in Stellar_Occultation**

  steward: **rings**
  namespace id: **rings**
  class: **Stellar_Occultation**
  version: **1.1**

  - definition: *maximum_observed_ring_elevation specifes the largest value for observed_ring_elevation in the data file. Only used if the value is not constant over the observation. Values range from -90 to %2B90 in units of degrees. Not intended for use in the data file. Nillable, in which case the nil_reason should be 'inapplicable'. *
  - value_data_type: **ASCII_Real**
  - minimum_value: **-90**
  - maximum_value: **90**
  - unit_of_measure_type: **Units_of_Angle**
  - valid units: **arcmin, arcsec, deg, hr, mrad, rad**
  - nillable: **false**

- **maximum_occurrences in DD_Association**

  steward: **ops**
  namespace id: **pds**
  class: **DD_Association**
  version: **1.1**

  - definition: **The maximum occurrences attribute indicates the number of times something may occur. It is also called the maximum cardinality. The asterisk character is used as a value to indicate that no upper bound exists.**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **maximum_occurrences in DD_Association_External**

  steward: **ops**
  namespace id: **pds**
  class: **DD_Association_External**
  version: **1.1**

  - definition: **The maximum occurrences attribute indicates the number of times something may occur. It is also called the maximum cardinality. The asterisk character is used as a value to indicate that no upper bound exists.**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **maximum_radial_sampling_interval in Radio_Occultation**

  steward: **rings**

namespace id: **rings**
class: **Radio_Occultation**
version: **1.1**

- definition: *maximum_radial_sampling_interval indicates the smallest radial spacing between consecutive points in a ring profile. In practice, this may be somewhat smaller than the radial_resolution because a profile may be over-sampled. If the value of radial_sampling_interval varies, the minimum and maximum attributes are required in labels. Nillable if the observation is not a ring occultation in which case the nil_reason should be 'inapplicable'. Not intended to be used as a table field. *
- value_data_type: **ASCII_Real**
- unit_of_measure_type: **Units_of_Length**
- valid units: **AU, Angstrom, cm, km, m, micrometer, mm, nm**
- nillable: **false**

- **maximum_radial_sampling_interval in Stellar_Occultation**

  steward: **rings**
  namespace id: **rings**
  class: **Stellar_Occultation**
  version: **1.1**

  - definition: *maximum_radial_sampling_interval indicates the smallest radial spacing between consecutive points in a ring profile. In practice, this may be somewhat smaller than the radial_resolution because a profile may be over-sampled. If the value of radial_sampling_interval varies, the minimum and maximum attributes are required in labels. Nillable if the observation is not a ring occultation in which case the nil_reason should be 'inapplicable'. Not intended to be used as a table field. *
  - value_data_type: **ASCII_Real**
  - unit_of_measure_type: **Units_of_Length**
  - valid units: **AU, Angstrom, cm, km, m, micrometer, mm, nm**
  - nillable: **false**

- **maximum_record_length in Record_Delimited**

  steward: **pds**
  namespace id: **pds**
  class: **Record_Delimited**
  version: **1.1**

  - definition: **The maximum_record_length attribute provides the maximum length of a record, including the record delimiter.**
  - value_data_type: **ASCII_Integer**
  - minimum_value: **1**
  - unit_of_measure_type: **Units_of_Storage**
  - valid units: **byte**
  - specified_unit_id: **byte**
  - nillable: **false**

- **maximum_ring_longitude in Radio_Occultation**

  steward: **rings**
  namespace id: **rings**
  class: **Radio_Occultation**
  version: **1.1**

  - definition: *maximum_ring_longitude specifies one boundary for the ring longitude range in the data; normally the largest value. However, for ranges that cross the prime meridian, the maximum ring longitude will have a value less than the minimum ring longitude. Values range from 0 to 360 in units of degrees. Required in label files for ring occultation data. Nillable if the observation is not a ring occultation in which case the nil_reason should be 'inapplicable'. *
  - value_data_type: **ASCII_Real**
  - minimum_value: **0**
  - maximum_value: **360**
  - unit_of_measure_type: **Units_of_Angle**
  - valid units: **arcmin, arcsec, deg, hr, mrad, rad**
  - nillable: **false**

- **maximum_ring_longitude in Stellar_Occultation**

  steward: **rings**
  namespace id: **rings**
  class: **Stellar_Occultation**
  version: **1.1**

  - definition: *maximum_ring_longitude specifies one boundary for the ring longitude range in the data; normally the largest value. However, for ranges that cross the prime meridian, the maximum ring longitude will have a value less

than the minimum ring longitude. Values range from 0 to 360 in units of degrees. Required in label files for ring occultation data. Nillable if the observation is not a ring occultation in which case the nil_reason should be 'inapplicable'. *
- value_data_type: **ASCII_Real**
- minimum_value: **0**
- maximum_value: **360**
- unit_of_measure_type: **Units_of_Angle**
- valid units: **arcmin, arcsec, deg, hr, mrad, rad**
- nillable: **false**

- **maximum_ring_radius in Radio_Occultation**

  steward: **rings**
  namespace id: **rings**
  class: **Radio_Occultation**
  version: **1.1**

  - definition: *maximum_ring_radius indicates the largest ring radius value in the data table. Units are km and are always positive. Required in label files for ring occultation data. Nillable if the observation is not a ring occultation in which case the nil_reason should be 'inapplicable'. *
  - value_data_type: **ASCII_Real**
  - unit_of_measure_type: **Units_of_Length**
  - valid units: **AU, Angstrom, cm, km, m, micrometer, mm, nm**
  - nillable: **false**

- **maximum_ring_radius in Stellar_Occultation**

  steward: **rings**
  namespace id: **rings**
  class: **Stellar_Occultation**
  version: **1.1**

  - definition: *maximum_ring_radius indicates the largest ring radius value in the data table. Units are km and are always positive. Required in label files for ring occultation data. Nillable if the observation is not a ring occultation in which case the nil_reason should be 'inapplicable'. *
  - value_data_type: **ASCII_Real**
  - unit_of_measure_type: **Units_of_Length**
  - valid units: **AU, Angstrom, cm, km, m, micrometer, mm, nm**
  - nillable: **false**

- **maximum_scaled_value in Object_Statistics**

  steward: **pds**
  namespace id: **pds**
  class: **Object_Statistics**
  version: **1.1**

  - definition: **The maximum_scaled_value attribute provides the maximum value after application of scaling_factor and value_offset (see their definitions; maximum_scaled_value is the maximum of Ov).**
  - value_data_type: **ASCII_Real**
  - nillable: **false**

- **maximum_value in DD_Value_Domain**

  steward: **ops**
  namespace id: **pds**
  class: **DD_Value_Domain**
  version: **1.1**

  - definition: **The maximum_value attribute provides the upper, inclusive bound on the value.**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **maximum_value in DD_Value_Domain_Full**

  steward: **ops**
  namespace id: **pds**
  class: **DD_Value_Domain_Full**
  version: **1.1**

  - definition: **The maximum_value attribute provides the upper, inclusive bound on the value.**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**

- nillable: **false**

- **maximum_wavelength in Radio_Occultation**

  steward: **rings**
  namespace id: **rings**
  class: **Radio_Occultation**
  version: **1.1**

  - definition: *maximum_wavelength is the largest wavelength used in the observation. Optional in labels. Used with minimum_wavelength when the observation is over a wavelength range. Nillable in which case the nil_reason should be 'inapplicable'. *
  - value_data_type: **ASCII_Real**
  - unit_of_measure_type: **Units_of_Length**
  - valid units: **AU, Angstrom, cm, km, m, micrometer, mm, nm**
  - nillable: **false**

- **maximum_wavelength in Stellar_Occultation**

  steward: **rings**
  namespace id: **rings**
  class: **Stellar_Occultation**
  version: **1.1**

  - definition: *maximum_wavelength is the largest wavelength used in the observation. Optional in labels. Used with minimum_wavelength when the observation is over a wavelength range. Nillable in which case the nil_reason should be 'inapplicable'. *
  - value_data_type: **ASCII_Real**
  - unit_of_measure_type: **Units_of_Length**
  - valid units: **AU, Angstrom, cm, km, m, micrometer, mm, nm**
  - nillable: **false**

- **md5_checksum in File**

  steward: **pds**
  namespace id: **pds**
  class: **File**
  version: **1.1**

  - definition: **The md5_checksum attribute is the 32-character hexadecimal number computed for a file using the MD5 algorithm.**
  - value_data_type: **ASCII_MD5_Checksum**
  - minimum_characters: **32**
  - maximum_characters: **32**
  - pattern: **([a-f0-9]{32})**
  - format: **0123456789abcdef**
  - nillable: **false**

- **md5_checksum in Object_Statistics**

  steward: **pds**
  namespace id: **pds**
  class: **Object_Statistics**
  version: **1.1**

  - definition: **The md5_checksum attribute is the 32-character hexadecimal number computed for a file using the MD5 algorithm.**
  - value_data_type: **ASCII_MD5_Checksum**
  - minimum_characters: **32**
  - maximum_characters: **32**
  - pattern: **([a-f0-9]{32})**
  - format: **0123456789abcdef**
  - nillable: **false**

- **mean in Field_Statistics**

  steward: **pds**
  namespace id: **pds**
  class: **Field_Statistics**
  version: **1.1**

  - definition: **The mean attribute provides the sum of the stored field values divided by the number of values in all records (empty fields and Special_Constants values are excluded from both the sum and the count).**
  - value_data_type: **ASCII_Real**
  - nillable: **false**

- **mean in Object_Statistics**

  steward: **pds**
  namespace id: **pds**
  class: **Object_Statistics**
  version: **1.1**

    - definition: **The mean attribute provides the sum of the stored array element values (after application of any bit mask) divided by the number of elements (Special_Constants values are excluded from both the sum and the count).**
    - value_data_type: **ASCII_Real**
    - nillable: **false**

- **median in Field_Statistics**

  steward: **pds**
  namespace id: **pds**
  class: **Field_Statistics**
  version: **1.1**

    - definition: **The median attribute provides the number separating the larger half of stored field values from the algebraically smaller half over all records (empty fields and Special_Constants values are excluded from the sort).**
    - value_data_type: **ASCII_Real**
    - nillable: **false**

- **median in Object_Statistics**

  steward: **pds**
  namespace id: **pds**
  class: **Object_Statistics**
  version: **1.1**

    - definition: **The median attribute provides the number separating the larger half of stored array element values from the algebraically smaller half after application of any bit mask (Special_Constants values are excluded from the sort).**
    - value_data_type: **ASCII_Real**
    - nillable: **false**

- **medium_type in NSSDC**

  steward: **ops**
  namespace id: **pds**
  class: **NSSDC**
  version: **1.1**

    - definition: **The medium_type attribute identifies the physical storage medium for a data volume. Examples: CD-ROM, CARTRIDGE TAPE.**
    - value_data_type: **ASCII_Short_String_Collapsed**
    - minimum_characters: **1**
    - maximum_characters: **255**
    - nillable: **false**

- **medium_type in Volume_PDS3**

  steward: **ops**
  namespace id: **pds**
  class: **Volume_PDS3**
  version: **1.1**

    - definition: **The medium_type attribute identifies the physical storage medium for a data volume. Examples: CD-ROM, CARTRIDGE TAPE.**
    - value_data_type: **ASCII_Short_String_Collapsed**
    - minimum_characters: **1**
    - maximum_characters: **255**
    - nillable: **false**

- **member_status in Bundle_Member_Entry**

  steward: **pds**
  namespace id: **pds**
  class: **Bundle_Member_Entry**
  version: **1.1**

    - definition: **The member_status attribute indicates whether the collection is primary and whether the file_specification_name has been provided for the product_collection label.**

- value_data_type: **ASCII_Short_String_Collapsed** - Enumerated
- minimum_characters: **1**
- maximum_characters: **255**
- nillable: **false**
- permissible values
  Primary - The collection is a primary member of the bundle
  Secondary - The collection is a secondary member of the bundle

- **minimum in Field_Statistics**

  steward: **pds**
  namespace id: **pds**
  class: **Field_Statistics**
  version: **1.1**

  - definition: **The minimum attribute provides the algebraically smallest stored value which appears in the field over all records (empty fields and Special_Constants values are excluded).**
  - value_data_type: **ASCII_Real**
  - nillable: **false**

- **minimum in Object_Statistics**

  steward: **pds**
  namespace id: **pds**
  class: **Object_Statistics**
  version: **1.1**

  - definition: **The minimum attribute provides the algebraically smallest value which appears in the stored array after application of any bit mask (Special_Constants values are excluded).**
  - value_data_type: **ASCII_Real**
  - nillable: **false**

- **minimum_characters in DD_Value_Domain**

  steward: **ops**
  namespace id: **pds**
  class: **DD_Value_Domain**
  version: **1.1**

  - definition: **The minimum_characters attribute provides the lower, inclusive bound on the number of characters.**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **minimum_characters in DD_Value_Domain_Full**

  steward: **ops**
  namespace id: **pds**
  class: **DD_Value_Domain_Full**
  version: **1.1**

  - definition: **The minimum_characters attribute provides the lower, inclusive bound on the number of characters.**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **minimum_light_source_incidence_angle in Radio_Occultation**

  steward: **rings**
  namespace id: **rings**
  class: **Radio_Occultation**
  version: **1.1**

  - definition: *minimum_light_source_incidence_angle specifes the smallest value for observed_ring_elevation in the observation. Only used if the value is not constant over the observation. Values range from 0 to %2B90 in units of degrees. Not intended for use in the data file. Nillable, in which case the nil_reason should be 'inapplicable'. *
  - value_data_type: **ASCII_Real**
  - minimum_value: **0**
  - maximum_value: **90**
  - unit_of_measure_type: **Units_of_Angle**
  - valid units: **arcmin, arcsec, deg, hr, mrad, rad**
  - nillable: **false**

- **minimum_observed_event_time in Radio_Occultation_Support**

  steward: **rings**
  namespace id: **rings**
  class: **Radio_Occultation_Support**
  version: **1.1**

  - definition: *minimum_observed_event_time indicates the value for earliest time in the described data, and is given in observed_event_tdb format. *
  - value_data_type: **ASCII_Real**
  - unit_of_measure_type: **Units_of_Time**
  - valid units: **day, hr, julian day, microseconds, min, ms, s, yr**
  - nillable: **false**

- **minimum_observed_ring_azimuth in Radio_Occultation**

  steward: **rings**
  namespace id: **rings**
  class: **Radio_Occultation**
  version: **1.1**

  - definition: *minimum_observed_ring_azimuth specifes the smallest value for observed_ring_azimuth in the data file. Values range from 0 to 360 in units of degrees. Required in label files for ring occultation data. Nillable if the observation is not a ring occultation in which case the nil_reason should be 'inapplicable'. *
  - value_data_type: **ASCII_Real**
  - minimum_value: **0**
  - maximum_value: **360**
  - unit_of_measure_type: **Units_of_Angle**
  - valid units: **arcmin, arcsec, deg, hr, mrad, rad**
  - nillable: **false**

- **minimum_observed_ring_azimuth in Stellar_Occultation**

  steward: **rings**
  namespace id: **rings**
  class: **Stellar_Occultation**
  version: **1.1**

  - definition: *minimum_observed_ring_azimuth specifes the smallest value for observed_ring_azimuth in the data file. Values range from 0 to 360 in units of degrees. Required in label files for ring occultation data. Nillable if the observation is not a ring occultation in which case the nil_reason should be 'inapplicable'. *
  - value_data_type: **ASCII_Real**
  - minimum_value: **0**
  - maximum_value: **360**
  - unit_of_measure_type: **Units_of_Angle**
  - valid units: **arcmin, arcsec, deg, hr, mrad, rad**
  - nillable: **false**

- **minimum_observed_ring_elevation in Radio_Occultation**

  steward: **rings**
  namespace id: **rings**
  class: **Radio_Occultation**
  version: **1.1**

  - definition: *minimum_observed_ring_elevation specifes the smallest value for observed_ring_elevation in the data file. Only used if the value is not constant over the observation. Values range from -90 to %2B90 in units of degrees. Not intended for use in the data file. Nillable, in which case the nil_reason should be 'inapplicable'. *
  - value_data_type: **ASCII_Real**
  - minimum_value: **-90**
  - maximum_value: **90**
  - unit_of_measure_type: **Units_of_Angle**
  - valid units: **arcmin, arcsec, deg, hr, mrad, rad**
  - nillable: **false**

- **minimum_observed_ring_elevation in Stellar_Occultation**

  steward: **rings**
  namespace id: **rings**
  class: **Stellar_Occultation**
  version: **1.1**

  - definition: *minimum_observed_ring_elevation specifes the smallest value for observed_ring_elevation in the data file. Only used if the value is not constant over the observation. Values range from -90 to %2B90 in units of degrees. Not intended for use in the data file. Nillable, in which case the nil_reason should be 'inapplicable'. *

- value_data_type: **ASCII_Real**
- minimum_value: **-90**
- maximum_value: **90**
- unit_of_measure_type: **Units_of_Angle**
- valid units: **arcmin, arcsec, deg, hr, mrad, rad**
- nillable: **false**

- **minimum_occurrences in DD_Association**

  steward: **ops**
  namespace id: **pds**
  class: **DD_Association**
  version: **1.1**

    - definition: **The minimum occurrences attribute indicates the number of times something may occur. It is also called the minimum cardinality.**
    - value_data_type: **ASCII_Short_String_Collapsed**
    - minimum_characters: **1**
    - maximum_characters: **255**
    - nillable: **false**

- **minimum_occurrences in DD_Association_External**

  steward: **ops**
  namespace id: **pds**
  class: **DD_Association_External**
  version: **1.1**

    - definition: **The minimum occurrences attribute indicates the number of times something may occur. It is also called the minimum cardinality.**
    - value_data_type: **ASCII_Short_String_Collapsed**
    - minimum_characters: **1**
    - maximum_characters: **255**
    - nillable: **false**

- **minimum_radial_sampling_interval in Radio_Occultation**

  steward: **rings**
  namespace id: **rings**
  class: **Radio_Occultation**
  version: **1.1**

    - definition: *minimum_radial_sampling_interval indicates the smallest radial spacing between consecutive points in a ring profile. In practice, this may be somewhat smaller than the radial_resolution because a profile may be over-sampled. If the value of radial_sampling_interval varies, the minimum and maximum attributes are required in labels. Nillable if the observation is not a ring occultation in which case the nil_reason should be 'inapplicable'. Not intended to be used as a table field. *
    - value_data_type: **ASCII_Real**
    - unit_of_measure_type: **Units_of_Length**
    - valid units: **AU, Angstrom, cm, km, m, micrometer, mm, nm**
    - nillable: **false**

- **minimum_radial_sampling_interval in Stellar_Occultation**

  steward: **rings**
  namespace id: **rings**
  class: **Stellar_Occultation**
  version: **1.1**

    - definition: *minimum_radial_sampling_interval indicates the smallest radial spacing between consecutive points in a ring profile. In practice, this may be somewhat smaller than the radial_resolution because a profile may be over-sampled. If the value of radial_sampling_interval varies, the minimum and maximum attributes are required in labels. Nillable if the observation is not a ring occultation in which case the nil_reason should be 'inapplicable'. Not intended to be used as a table field. *
    - value_data_type: **ASCII_Real**
    - unit_of_measure_type: **Units_of_Length**
    - valid units: **AU, Angstrom, cm, km, m, micrometer, mm, nm**
    - nillable: **false**

- **minimum_ring_longitude in Radio_Occultation**

  steward: **rings**
  namespace id: **rings**
  class: **Radio_Occultation**
  version: **1.1**

- definition: *minimum_ring_longitude specifes one boundary for the ring longitude range in the data; normally the smallest value. However, for ranges that cross the prime meridian, the minimum ring longitude will have a value greater than the maximum ring longitude. Values range from 0 to 360 in units of degrees. Required in label files for ring occultation data. Nillable if the observation is not a ring occultation in which case the nil_reason should be 'inapplicable'. *
- value_data_type: **ASCII_Real**
- minimum_value: **0**
- maximum_value: **360**
- unit_of_measure_type: **Units_of_Angle**
- valid units: **arcmin, arcsec, deg, hr, mrad, rad**
- nillable: **false**

- **minimum_ring_longitude in Stellar_Occultation**

  steward: **rings**
  namespace id: **rings**
  class: **Stellar_Occultation**
  version: **1.1**

  - definition: *minimum_ring_longitude specifes one boundary for the ring longitude range in the data; normally the smallest value. However, for ranges that cross the prime meridian, the minimum ring longitude will have a value greater than the maximum ring longitude. Values range from 0 to 360 in units of degrees. Required in label files for ring occultation data. Nillable if the observation is not a ring occultation in which case the nil_reason should be 'inapplicable'. *
  - value_data_type: **ASCII_Real**
  - minimum_value: **0**
  - maximum_value: **360**
  - unit_of_measure_type: **Units_of_Angle**
  - valid units: **arcmin, arcsec, deg, hr, mrad, rad**
  - nillable: **false**

- **minimum_ring_radius in Radio_Occultation**

  steward: **rings**
  namespace id: **rings**
  class: **Radio_Occultation**
  version: **1.1**

  - definition: *minimum_ring_radius indicates the smallest ring radius value in the data table. Units are km and are always positive. Required in label files for ring occultation data. Nillable if the observation is not a ring occultation in which case the nil_reason should be 'inapplicable'. *
  - value_data_type: **ASCII_Real**
  - unit_of_measure_type: **Units_of_Length**
  - valid units: **AU, Angstrom, cm, km, m, micrometer, mm, nm**
  - nillable: **false**

- **minimum_ring_radius in Stellar_Occultation**

  steward: **rings**
  namespace id: **rings**
  class: **Stellar_Occultation**
  version: **1.1**

  - definition: *minimum_ring_radius indicates the smallest ring radius value in the data table. Units are km and are always positive. Required in label files for ring occultation data. Nillable if the observation is not a ring occultation in which case the nil_reason should be 'inapplicable'. *
  - value_data_type: **ASCII_Real**
  - unit_of_measure_type: **Units_of_Length**
  - valid units: **AU, Angstrom, cm, km, m, micrometer, mm, nm**
  - nillable: **false**

- **minimum_scaled_value in Object_Statistics**

  steward: **pds**
  namespace id: **pds**
  class: **Object_Statistics**
  version: **1.1**

  - definition: **The minimum_scaled_value attribute provides the minimum value after application of scaling_factor and value_offset (see their definitions; minimum_scaled_value is the minimum of Ov).**
  - value_data_type: **ASCII_Real**
  - nillable: **false**

- **minimum_value in DD_Value_Domain**

  steward: **ops**

namespace id: **pds**
class: **DD_Value_Domain**
version: **1.1**

- definition: **The minimum_value attribute provides the lower inclusive bound on the value.**
- value_data_type: **ASCII_Short_String_Collapsed**
- minimum_characters: **1**
- maximum_characters: **255**
- nillable: **false**

- **minimum_value in DD_Value_Domain_Full**

  steward: **ops**
  namespace id: **pds**
  class: **DD_Value_Domain_Full**
  version: **1.1**

  - definition: **The minimum_value attribute provides the lower inclusive bound on the value.**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **minimum_wavelength in Radio_Occultation**

  steward: **rings**
  namespace id: **rings**
  class: **Radio_Occultation**
  version: **1.1**

  - definition: *minimum_wavelength is the smallest wavelength used in the observation. Optional in labels. Used with maximum_wavelength when the observation is over a wavelength range. Nillable in which case the nil_reason should be 'inapplicable'. *
  - value_data_type: **ASCII_Real**
  - unit_of_measure_type: **Units_of_Length**
  - valid units: **AU, Angstrom, cm, km, m, micrometer, mm, nm**
  - nillable: **false**

- **minimum_wavelength in Stellar_Occultation**

  steward: **rings**
  namespace id: **rings**
  class: **Stellar_Occultation**
  version: **1.1**

  - definition: *minimum_wavelength is the smallest wavelength used in the observation. Optional in labels. Used with maximum_wavelength when the observation is over a wavelength range. Nillable in which case the nil_reason should be 'inapplicable'. *
  - value_data_type: **ASCII_Real**
  - unit_of_measure_type: **Units_of_Length**
  - valid units: **AU, Angstrom, cm, km, m, micrometer, mm, nm**
  - nillable: **false**

- **missing_constant in Special_Constants**

  steward: **pds**
  namespace id: **pds**
  class: **Special_Constants**
  version: **1.1**

  - definition: **The missing_constant attribute provides a value that indicates the original value was missing, such as due to a gap in coverage.**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **mission_desc in Mission_PDS3**

  steward: **ops**
  namespace id: **pds**
  class: **Mission_PDS3**
  version: **1.1**

  - definition: **The mission_desc attribute summarizes major aspects of a planetary mission or project, including the number and type of spacecraft, the target body or bodies and major accomplishments.**

- value_data_type: **ASCII_Text_Preserved**
- minimum_characters: **1**
- nillable: **false**

- **mission_name in Mission_PDS3**

  steward: **ops**
  namespace id: **pds**
  class: **Mission_PDS3**
  version: **1.1**

    - definition: **The mission_name attribute identifies a major planetary mission or project. A given planetary mission may be associated with one or more spacecraft.**
    - value_data_type: **ASCII_Short_String_Collapsed**
    - minimum_characters: **1**
    - maximum_characters: **255**
    - nillable: **false**

- **mission_objectives_summary in Mission_PDS3**

  steward: **ops**
  namespace id: **pds**
  class: **Mission_PDS3**
  version: **1.1**

    - definition: **The mission_objectives_summary attribute describes the major scientific objectives of a planetary mission or project.**
    - value_data_type: **ASCII_Text_Preserved**
    - minimum_characters: **1**
    - nillable: **false**

- **mission_start_date in Mission_PDS3**

  steward: **ops**
  namespace id: **pds**
  class: **Mission_PDS3**
  version: **1.1**

    - definition: **The mission_start_date attribute provides the date of the beginning of a mission in UTC system format.**
    - value_data_type: **ASCII_Short_String_Collapsed**
    - minimum_characters: **1**
    - maximum_characters: **255**
    - nillable: **false**

- **mission_stop_date in Mission_PDS3**

  steward: **ops**
  namespace id: **pds**
  class: **Mission_PDS3**
  version: **1.1**

    - definition: **The mission_stop_date attribute provides the date of the end of a mission in UTC system format.**
    - value_data_type: **ASCII_Short_String_Collapsed**
    - minimum_characters: **1**
    - maximum_characters: **255**
    - nillable: **false**

- **model_id in Instrument**

  steward: **pds**
  namespace id: **pds**
  class: **Instrument**
  version: **1.1**

    - definition: **The model_id attribute helps discriminate instrument hardware. For example "flight", "engineering", or "proto" have been used.**
    - value_data_type: **ASCII_Short_String_Collapsed**
    - minimum_characters: **1**
    - maximum_characters: **255**
    - nillable: **false**

- **modification_date in Modification_Detail**

  steward: **pds**

namespace id: **pds**
class: **Modification_Detail**
version: **1.1**

- definition: **The modification_date attribute provides date the modifications were completed**
- value_data_type: **ASCII_Date_YMD**
- format: **YYYY-MM-DD**
- nillable: **false**

- **naif_host_id in Instrument_Host**

steward: **pds**
namespace id: **pds**
class: **Instrument_Host**
version: **1.1**

- definition: **The naif_instrument_id element provides the numeric ID used within the SPICE system to identify the spacecraft, spacecraft structure or science instrument.**
- value_data_type: **ASCII_Short_String_Collapsed**
- minimum_characters: **1**
- maximum_characters: **255**
- nillable: **false**

- **naif_instrument_id in Instrument**

steward: **pds**
namespace id: **pds**
class: **Instrument**
version: **1.1**

- definition: **The naif_instrument_id element provides the numeric ID used within the SPICE system to identify the spacecraft, spacecraft structure or science instrument.**
- value_data_type: **ASCII_Short_String_Collapsed**
- minimum_characters: **1**
- maximum_characters: **255**
- nillable: **false**

- **name in DD_Association_External**

steward: **ops**
namespace id: **pds**
class: **DD_Association_External**
version: **1.1**

- definition: **The name attribute provides a word or combination of words by which the object is known.**
- value_data_type: **ASCII_Short_String_Collapsed**
- minimum_characters: **1**
- maximum_characters: **255**
- nillable: **false**

- **name in DD_Attribute**

steward: **ops**
namespace id: **pds**
class: **DD_Attribute**
version: **1.1**

- definition: **The name attribute provides a word or combination of words by which the object is known.**
- value_data_type: **ASCII_Short_String_Collapsed**
- minimum_characters: **1**
- maximum_characters: **255**
- nillable: **false**

- **name in DD_Attribute_Full**

steward: **ops**
namespace id: **pds**
class: **DD_Attribute_Full**
version: **1.1**

- definition: **The name attribute provides a word or combination of words by which the object is known.**
- value_data_type: **ASCII_Short_String_Collapsed**
- minimum_characters: **1**
- maximum_characters: **255**
- nillable: **false**

- **name in DD_Class**

  steward: **ops**
  namespace id: **pds**
  class: **DD_Class**
  version: **1.1**

    - definition: **The name attribute provides a word or combination of words by which the object is known.**
    - value_data_type: **ASCII_Short_String_Collapsed**
    - minimum_characters: **1**
    - maximum_characters: **255**
    - nillable: **false**

- **name in DD_Class_Full**

  steward: **ops**
  namespace id: **pds**
  class: **DD_Class_Full**
  version: **1.1**

    - definition: **The name attribute provides a word or combination of words by which the object is known.**
    - value_data_type: **ASCII_Short_String_Collapsed**
    - minimum_characters: **1**
    - maximum_characters: **255**
    - nillable: **false**

- **name in External_Reference_Extended**

  steward: **ops**
  namespace id: **pds**
  class: **External_Reference_Extended**
  version: **1.1**

    - definition: **The name attribute provides a word or combination of words by which the object is known.**
    - value_data_type: **ASCII_Short_String_Collapsed**
    - minimum_characters: **1**
    - maximum_characters: **255**
    - nillable: **false**

- **name in Ingest_LDD**

  steward: **ops**
  namespace id: **pds**
  class: **Ingest_LDD**
  version: **1.1**

    - definition: **The name attribute provides a word or combination of words by which the object is known.**
    - value_data_type: **ASCII_Short_String_Collapsed**
    - minimum_characters: **1**
    - maximum_characters: **255**
    - nillable: **false**

- **name in Node**

  steward: **ops**
  namespace id: **pds**
  class: **Node**
  version: **1.1**

    - definition: **The name attribute provides a word or combination of words by which the object is known.**
    - value_data_type: **ASCII_Short_String_Collapsed** - Enumerated
    - minimum_characters: **1**
    - maximum_characters: **255**
    - nillable: **false**
    - permissible values
      Engineering - The Node has name Engineering
      Geosciences - The Node has name Geosciences
      Imaging - The Node has name Imaging
      Management - The Node has name Management
      Navigation Ancillary Information Facility - The Node has name Navigation Ancillary Information Facility
      Planetary Atmospheres - The Node has name Planetary Atmospheres
      Planetary Plasma Interactions - The Node has name Planetary Plasma Interactions
      Planetary Rings - The Node has name Planetary Rings
      Planetary Science Archive - The Node has name Planetary Science Archive
      Radio Science - The Node has name Radio Science
      Small Bodies - The Node has name Small Bodies

- **name in PDS_Affiliate**

  steward: **ops**
  namespace id: **pds**
  class: **PDS_Affiliate**
  version: **1.1**

    - definition: **The name attribute provides a word or combination of words by which the object is known.**
    - value_data_type: **ASCII_Short_String_Collapsed**
    - minimum_characters: **1**
    - maximum_characters: **255**
    - nillable: **false**

- **name in PDS_Guest**

  steward: **ops**
  namespace id: **pds**
  class: **PDS_Guest**
  version: **1.1**

    - definition: **The name attribute provides a word or combination of words by which the object is known.**
    - value_data_type: **ASCII_Short_String_Collapsed**
    - minimum_characters: **1**
    - maximum_characters: **255**
    - nillable: **false**

- **name in Software**

  steward: **ops**
  namespace id: **pds**
  class: **Software**
  version: **1.1**

    - definition: **The name attribute provides a word or combination of words by which the object is known.**
    - value_data_type: **ASCII_Short_String_Collapsed**
    - minimum_characters: **1**
    - maximum_characters: **255**
    - nillable: **false**

- **name in Agency**

  steward: **pds**
  namespace id: **pds**
  class: **Agency**
  version: **1.1**

    - definition: **The name attribute provides a word or combination of words by which the object is known.**
    - value_data_type: **ASCII_Short_String_Collapsed** - Enumerated
    - minimum_characters: **1**
    - maximum_characters: **255**
    - nillable: **false**
    - permissible values
      European Space Agency - The Agency has name European Space Agency
      National Aeronautics and Space Administration - The Agency has name National Aeronautics and Space Administration

- **name in Byte_Stream**

  steward: **pds**
  namespace id: **pds**
  class: **Byte_Stream**
  version: **1.1**

    - definition: **The name attribute provides a word or combination of words by which the object is known.**
    - value_data_type: **ASCII_Short_String_Collapsed**
    - minimum_characters: **1**
    - maximum_characters: **255**
    - nillable: **false**

- **name in Facility**

  steward: **pds**
  namespace id: **pds**
  class: **Facility**
  version: **1.1**

- definition: **The name attribute provides a word or combination of words by which the object is known.**
- value_data_type: **ASCII_Short_String_Collapsed**
- minimum_characters: **1**
- maximum_characters: **255**
- nillable: **false**

- **name in Field**

  steward: **pds**
  namespace id: **pds**
  class: **Field**
  version: **1.1**

  - definition: **The name attribute provides a word or combination of words by which the object is known.**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **name in Field_Binary**

  steward: **pds**
  namespace id: **pds**
  class: **Field_Binary**
  version: **1.1**

  - definition: **The name attribute provides a word or combination of words by which the object is known.**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **name in Field_Bit**

  steward: **pds**
  namespace id: **pds**
  class: **Field_Bit**
  version: **1.1**

  - definition: **The name attribute provides a word or combination of words by which the object is known.**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **name in Field_Character**

  steward: **pds**
  namespace id: **pds**
  class: **Field_Character**
  version: **1.1**

  - definition: **The name attribute provides a word or combination of words by which the object is known.**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **name in Field_Delimited**

  steward: **pds**
  namespace id: **pds**
  class: **Field_Delimited**
  version: **1.1**

  - definition: **The name attribute provides a word or combination of words by which the object is known.**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **name in Instrument**

  steward: **pds**

namespace id: **pds**
class: **Instrument**
version: **1.1**

- definition: **The name attribute provides a word or combination of words by which the object is known.**
- value_data_type: **ASCII_Short_String_Collapsed**
- minimum_characters: **1**
- maximum_characters: **255**
- nillable: **false**

- **name in Instrument_Host**

steward: **pds**
namespace id: **pds**
class: **Instrument_Host**
version: **1.1**

- definition: **The name attribute provides a word or combination of words by which the object is known.**
- value_data_type: **ASCII_Short_String_Collapsed**
- minimum_characters: **1**
- maximum_characters: **255**
- nillable: **false**

- **name in Investigation**

steward: **pds**
namespace id: **pds**
class: **Investigation**
version: **1.1**

- definition: **The name attribute provides a word or combination of words by which the object is known.**
- value_data_type: **ASCII_Short_String_Collapsed**
- minimum_characters: **1**
- maximum_characters: **255**
- nillable: **false**

- **name in Investigation_Area**

steward: **pds**
namespace id: **pds**
class: **Investigation_Area**
version: **1.1**

- definition: **The name attribute provides a word or combination of words by which the object is known.**
- value_data_type: **ASCII_Short_String_Collapsed**
- minimum_characters: **1**
- maximum_characters: **255**
- nillable: **false**

- **name in Observing_System**

steward: **pds**
namespace id: **pds**
class: **Observing_System**
version: **1.1**

- definition: **The name attribute provides a word or combination of words by which the object is known.**
- value_data_type: **ASCII_Short_String_Collapsed**
- minimum_characters: **1**
- maximum_characters: **255**
- nillable: **false**

- **name in Observing_System_Component**

steward: **pds**
namespace id: **pds**
class: **Observing_System_Component**
version: **1.1**

- definition: **The name attribute provides a word or combination of words by which the object is known.**
- value_data_type: **ASCII_Short_String_Collapsed**
- minimum_characters: **1**
- maximum_characters: **255**
- nillable: **false**

- **name in Quaternion**

  steward: **pds**
  namespace id: **pds**
  class: **Quaternion**
  version: **1.1**

  - definition: **The name attribute provides a word or combination of words by which the object is known.**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **name in Quaternion_Component**

  steward: **pds**
  namespace id: **pds**
  class: **Quaternion_Component**
  version: **1.1**

  - definition: **The name attribute provides a word or combination of words by which the object is known.**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **name in Resource**

  steward: **pds**
  namespace id: **pds**
  class: **Resource**
  version: **1.1**

  - definition: **The name attribute provides a word or combination of words by which the object is known.**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **name in Target**

  steward: **pds**
  namespace id: **pds**
  class: **Target**
  version: **1.1**

  - definition: **The name attribute provides a word or combination of words by which the object is known.**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **name in Target_Identification**

  steward: **pds**
  namespace id: **pds**
  class: **Target_Identification**
  version: **1.1**

  - definition: **The name attribute provides a human-readable primary name/identification in the standard format for the target type.**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **name in Terminological_Entry**

  steward: **pds**
  namespace id: **pds**
  class: **Terminological_Entry**
  version: **1.1**

  - definition: **The name attribute provides a word or combination of words by which the object is known.**
  - value_data_type: **UTF8_Short_String_Collapsed**
  - minimum_characters: **1**

- maximum_characters: **255**
- nillable: **false**

- **name in Vector**

  steward: **pds**
  namespace id: **pds**
  class: **Vector**
  version: **1.1**

  - definition: **The name attribute provides a word or combination of words by which the object is known.**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **name in Vector_Component**

  steward: **pds**
  namespace id: **pds**
  class: **Vector_Component**
  version: **1.1**

  - definition: **The name attribute provides a word or combination of words by which the object is known.**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **namespace_id in DD_Association_External**

  steward: **ops**
  namespace id: **pds**
  class: **DD_Association_External**
  version: **1.1**

  - definition: **The namespace_id attribute provides the abbreviation of the XML schema namespace container for this logical grouping of classes and attributes. It is assigned by the steward.**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **namespace_id in DD_Attribute_Full**

  steward: **ops**
  namespace id: **pds**
  class: **DD_Attribute_Full**
  version: **1.1**

  - definition: **The namespace_id attribute provides the abbreviation of the XML schema namespace container for this logical grouping of classes and attributes. It is assigned by the steward.**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **namespace_id in DD_Class_Full**

  steward: **ops**
  namespace id: **pds**
  class: **DD_Class_Full**
  version: **1.1**

  - definition: **The namespace_id attribute provides the abbreviation of the XML schema namespace container for this logical grouping of classes and attributes. It is assigned by the steward.**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **namespace_id in Ingest_LDD**

  steward: **ops**
  namespace id: **pds**

class: **Ingest_LDD**
version: **1.1**

- definition: **The namespace_id attribute provides the abbreviation of the XML schema namespace container for this logical grouping of classes and attributes. It is assigned by the steward.**
- value_data_type: **ASCII_Short_String_Collapsed**
- minimum_characters: **1**
- maximum_characters: **255**
- nillable: **false**

- **nil_reason in Symbolic_Literals_PDS**

  steward: **ops**
  namespace id: **pds**
  class: **Symbolic_Literals_PDS**
  version: **1.1**

  - definition: **The nil_reason attribute provides the permissible values allowed as reasons when an attribute assigned a nil value.**
  - value_data_type: **ASCII_Short_String_Collapsed** - Enumerated
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**
  - permissible values
    anticipated - The value is temporarily not available.
    inapplicable - There is no value.
    missing - The correct value is not readily available to the sender of this data. However, a correct value probably exists.
    unknown - The correct value is not readily available to the sender of this data. Furthermore, a correct value may not exist.

- **nillable_flag in DD_Attribute**

  steward: **ops**
  namespace id: **pds**
  class: **DD_Attribute**
  version: **1.1**

  - definition: **The nillable_flag attribute indicates whether an attribute is allowed to take on nil as a value.**
  - value_data_type: **ASCII_Boolean**
  - nillable: **false**

- **nillable_flag in DD_Attribute_Full**

  steward: **ops**
  namespace id: **pds**
  class: **DD_Attribute_Full**
  version: **1.1**

  - definition: **The nillable_flag attribute indicates whether an attribute is allowed to take on nil as a value.**
  - value_data_type: **ASCII_Boolean**
  - nillable: **false**

- **not_applicable_constant in Special_Constants**

  steward: **pds**
  namespace id: **pds**
  class: **Special_Constants**
  version: **1.1**

  - definition: **The not_applicable_constant attribute provides a value that indicates the parameter is not applicable.**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **nssdc_collection_id in NSSDC**

  steward: **ops**
  namespace id: **pds**
  class: **NSSDC**
  version: **1.1**

  - definition: **An NSSDC Collection ID is an NSSDC assigned identifier for a collection of PDS datasets.**
  - value_data_type: **ASCII_Short_String_Collapsed**

- minimum_characters: **1**
- maximum_characters: **255**
- nillable: **false**

- **object_length in Encoded_Byte_Stream**

  steward: **pds**
  namespace id: **pds**
  class: **Encoded_Byte_Stream**
  version: **1.1**

  - definition: **The object_length attribute provides the length of the digital object in bytes.**
  - value_data_type: **ASCII_Integer**
  - minimum_value: **1**
  - unit_of_measure_type: **Units_of_Storage**
  - valid units: **byte**
  - specified_unit_id: **byte**
  - nillable: **false**

- **object_length in Header**

  steward: **pds**
  namespace id: **pds**
  class: **Header**
  version: **1.1**

  - definition: **The object_length attribute provides the length of the digital object in bytes.**
  - value_data_type: **ASCII_Integer**
  - minimum_value: **1**
  - unit_of_measure_type: **Units_of_Storage**
  - valid units: **byte**
  - specified_unit_id: **byte**
  - nillable: **false**

- **object_length in Parsable_Byte_Stream**

  steward: **pds**
  namespace id: **pds**
  class: **Parsable_Byte_Stream**
  version: **1.1**

  - definition: **The object_length attribute provides the length of the digital object in bytes.**
  - value_data_type: **ASCII_Integer**
  - minimum_value: **1**
  - unit_of_measure_type: **Units_of_Storage**
  - valid units: **byte**
  - specified_unit_id: **byte**
  - nillable: **false**

- **observed_event_start_tdb in Radio_Occultation**

  steward: **rings**
  namespace id: **rings**
  class: **Radio_Occultation**
  version: **1.1**

  - definition: *observed_event_start_tdb indicates the value for earliest time in the described data, and is given in observed_event_tdb format. Optional in labels; not intended for use as a table field. *
  - value_data_type: **ASCII_Real**
  - unit_of_measure_type: **Units_of_Time**
  - valid units: **day, hr, julian day, microseconds, min, ms, s, yr**
  - nillable: **false**

- **observed_event_start_tdb in Stellar_Occultation**

  steward: **rings**
  namespace id: **rings**
  class: **Stellar_Occultation**
  version: **1.1**

  - definition: *observed_event_start_tdb indicates the value for earliest time in the described data, and is given in observed_event_tdb format. Optional in labels; not intended for use as a table field. *
  - value_data_type: **ASCII_Real**
  - unit_of_measure_type: **Units_of_Time**
  - valid units: **day, hr, julian day, microseconds, min, ms, s, yr**
  - nillable: **false**

- **observed_event_stop_tdb in Radio_Occultation**

  steward: **rings**
  namespace id: **rings**
  class: **Radio_Occultation**
  version: **1.1**

  - definition: *observed_event_stop_tdb indicates the value for latest time in the described data, and is given in observed_event_tdb format. Optional in labels; not intended for use as a table field. Nillable if the observation is not an occultation in which case the nil_reason should be 'inapplicable'. *
  - value_data_type: **ASCII_Real**
  - unit_of_measure_type: **Units_of_Time**
  - valid units: **day, hr, julian day, microseconds, min, ms, s, yr**
  - nillable: **false**

- **observed_event_stop_tdb in Stellar_Occultation**

  steward: **rings**
  namespace id: **rings**
  class: **Stellar_Occultation**
  version: **1.1**

  - definition: *observed_event_stop_tdb indicates the value for latest time in the described data, and is given in observed_event_tdb format. Optional in labels; not intended for use as a table field. Nillable if the observation is not an occultation in which case the nil_reason should be 'inapplicable'. *
  - value_data_type: **ASCII_Real**
  - unit_of_measure_type: **Units_of_Time**
  - valid units: **day, hr, julian day, microseconds, min, ms, s, yr**
  - nillable: **false**

- **observed_ring_elevation in Radio_Occultation**

  steward: **rings**
  namespace id: **rings**
  class: **Radio_Occultation**
  version: **1.1**

  - definition: *observed_ring_elevation is an angle measured at a point in the ring plane, starting from the ring plane to the direction of a photon heading to the observer. This angle is positive on the side of the ring plane defined by positive angular momentum, and negative on the opposite side. Values range from -90 to %2B90 in units of degrees. This angle is constant for stellar occultations, but may vary significantly during radio occultations. Note: The direction of positive angular momentum points toward the IAU-defined north side of the ring plane for Jupiter, Saturn and Neptune, but IAU-defined south side of the ring plane for Uranus. Required in the label if the value is constant for the observation. If the angle varies for the observation, the min and max attributes are required in the label, and observed_ring_elevation is strongly recommended as a field in the data table. Nillable, in which case the nil_reason should be 'inapplicable'. The above definition of observed_ring_elevation is equivalent to the most common usage of the term 'ring open angle', B. *
  - value_data_type: **ASCII_Real**
  - minimum_value: **-90**
  - maximum_value: **90**
  - unit_of_measure_type: **Units_of_Angle**
  - valid units: **arcmin, arcsec, deg, hr, mrad, rad**
  - nillable: **false**

- **observed_ring_elevation in Stellar_Occultation**

  steward: **rings**
  namespace id: **rings**
  class: **Stellar_Occultation**
  version: **1.1**

  - definition: *observed_ring_elevation is an angle measured at a point in the ring plane, starting from the ring plane to the direction of a photon heading to the observer. This angle is positive on the side of the ring plane defined by positive angular momentum, and negative on the opposite side. Values range from -90 to %2B90 in units of degrees. This angle is constant for stellar occultations, but may vary significantly during radio occultations. Note: The direction of positive angular momentum points toward the IAU-defined north side of the ring plane for Jupiter, Saturn and Neptune, but IAU-defined south side of the ring plane for Uranus. Required in the label if the value is constant for the observation. If the angle varies for the observation, the min and max attributes are required in the label, and observed_ring_elevation is strongly recommended as a field in the data table. Nillable, in which case the nil_reason should be 'inapplicable'. The above definition of observed_ring_elevation is equivalent to the most common usage of the term 'ring open angle', B. *
  - value_data_type: **ASCII_Real**
  - minimum_value: **-90**
  - maximum_value: **90**
  - unit_of_measure_type: **Units_of_Angle**
  - valid units: **arcmin, arcsec, deg, hr, mrad, rad**

- nillable: **false**

- **occultation_type in Radio_Occultation**

  steward: **rings**
  namespace id: **rings**
  class: **Radio_Occultation**
  version: **1.1**

  - definition: *occultation_type distinguishes between three types of occultation experiments: Stellar, Solar, and Radio. Stellar occultations involve observing a star as a targeted ring or body passes in front, as seen from either a spacecraft or Earth-based observatory. Solar occultations are similar to stellar occultations except that the Sun is used in place of a star. Radio occultations typically involve observing the continuous-wave radio transmissions from a spacecraft as it passes behind the target as seen from a radio telescope on Earth or another spacecraft. Required in labels of occultation observations. Nillable if the observation is not an occultation in which case the nil_reason should be 'inapplicable'. Normally not intended as a value for a table field. *
  - value_data_type: **ASCII_Short_String_Collapsed** - Enumerated
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**
  - permissible values
    Radio - Radio occultation
    Solar - Solar occultation
    Stellar - Stellar occultation

- **occultation_type in Radio_Occultation_Support**

  steward: **rings**
  namespace id: **rings**
  class: **Radio_Occultation_Support**
  version: **1.1**

  - definition: *occultation_type distinguishes between three types of occultation experiments: Stellar, Solar, and Radio. Stellar occultations involve observing a star as a targeted ring or body passes in front, as seen from either a spacecraft or Earth-based observatory. Solar occultations are similar to stellar occultations except that the Sun is used in place of a star. Radio occultations typically involve observing the continuous-wave radio transmissions from a spacecraft as it passes behind the target as seen from a radio telescope on Earth or another spacecraft. Required in labels of occultation observations. Nillable if the observation is not an occultation in which case the nil_reason should be 'inapplicable'. Normally not intended as a value for a table field. *
  - value_data_type: **ASCII_Short_String_Collapsed** - Enumerated
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**
  - permissible values
    Radio - Radio occultation
    Solar - Solar occultation
    Stellar - Stellar occultation

- **occultation_type in Stellar_Occultation**

  steward: **rings**
  namespace id: **rings**
  class: **Stellar_Occultation**
  version: **1.1**

  - definition: *occultation_type distinguishes between three types of occultation experiments: Stellar, Solar, and Radio. Stellar occultations involve observing a star as a targeted ring or body passes in front, as seen from either a spacecraft or Earth-based observatory. Solar occultations are similar to stellar occultations except that the Sun is used in place of a star. Radio occultations typically involve observing the continuous-wave radio transmissions from a spacecraft as it passes behind the target as seen from a radio telescope on Earth or another spacecraft. Required in labels of occultation observations. Nillable if the observation is not an occultation in which case the nil_reason should be 'inapplicable'. Normally not intended as a value for a table field. *
  - value_data_type: **ASCII_Short_String_Collapsed** - Enumerated
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**
  - permissible values
    Radio - Radio occultation
    Solar - Solar occultation
    Stellar - Stellar occultation

- **offset in Array**

  steward: **pds**
  namespace id: **pds**
  class: **Array**
  version: **1.1**

- definition: **The offset attribute provides the displacement of the object starting position from the beginning of the parent structure (file, record, etc.). If there is no displacement, offset=0.**
- value_data_type: **ASCII_Integer**
- minimum_value: **0**
- unit_of_measure_type: **Units_of_Storage**
- valid units: **byte**
- specified_unit_id: **byte**
- nillable: **false**

- **offset in Encoded_Byte_Stream**

  steward: **pds**
  namespace id: **pds**
  class: **Encoded_Byte_Stream**
  version: **1.1**

  - definition: **The offset attribute provides the displacement of the object starting position from the beginning of the parent structure (file, record, etc.). If there is no displacement, offset=0.**
  - value_data_type: **ASCII_Integer**
  - minimum_value: **0**
  - unit_of_measure_type: **Units_of_Storage**
  - valid units: **byte**
  - specified_unit_id: **byte**
  - nillable: **false**

- **offset in Parsable_Byte_Stream**

  steward: **pds**
  namespace id: **pds**
  class: **Parsable_Byte_Stream**
  version: **1.1**

  - definition: **The offset attribute provides the displacement of the object starting position from the beginning of the parent structure (file, record, etc.). If there is no displacement, offset=0.**
  - value_data_type: **ASCII_Integer**
  - minimum_value: **0**
  - unit_of_measure_type: **Units_of_Storage**
  - valid units: **byte**
  - specified_unit_id: **byte**
  - nillable: **false**

- **offset in Table_Base**

  steward: **pds**
  namespace id: **pds**
  class: **Table_Base**
  version: **1.1**

  - definition: **The offset attribute provides the displacement of the object starting position from the beginning of the parent structure (file, record, etc.). If there is no displacement, offset=0.**
  - value_data_type: **ASCII_Integer**
  - minimum_value: **0**
  - unit_of_measure_type: **Units_of_Storage**
  - valid units: **byte**
  - specified_unit_id: **byte**
  - nillable: **false**

- **orbit_direction in Target_PDS3**

  steward: **ops**
  namespace id: **pds**
  class: **Target_PDS3**
  version: **1.1**

  - definition: **The orbit_direction element provides the direction of movement along the orbit about the primary as seen from the north pole of the 'invariable plane of the solar system', which is the plane passing through the center of mass of the solar system and perpendicular to the angular momentum vector of the solar system orbit motion. PROGRADE for positive rotation according to the right-hand rule, RETROGRADE for negative rotation.**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **orbit_number in Radio_Occultation**

steward: **rings**
namespace id: **rings**
class: **Radio_Occultation**
version: **1.1**

- definition: *orbit_number if present is the value assigned by the mission for the orbit number associated with the observation. Optional in labels of occultation observations and may be used multiple times. Nillable, the nil_reason should be 'inapplicable'. Normally not intended as a value for a table field. *
- value_data_type: **ASCII_Short_String_Collapsed**
- minimum_characters: **1**
- maximum_characters: **255**
- nillable: **true**

- **orbit_number in Radio_Occultation_Support**

steward: **rings**
namespace id: **rings**
class: **Radio_Occultation_Support**
version: **1.1**

- definition: *orbit_number if present is the value assigned by the mission for the orbit number associated with the observation. Optional in labels of occultation observations and may be used multiple times. Nillable, the nil_reason should be 'inapplicable'. Normally not intended as a value for a table field. *
- value_data_type: **ASCII_Short_String_Collapsed**
- minimum_characters: **1**
- maximum_characters: **255**
- nillable: **true**

- **orbit_number in Stellar_Occultation**

steward: **rings**
namespace id: **rings**
class: **Stellar_Occultation**
version: **1.1**

- definition: *orbit_number if present is the value assigned by the mission for the orbit number associated with the observation. Optional in labels of occultation observations and may be used multiple times. Nillable, the nil_reason should be 'inapplicable'. Normally not intended as a value for a table field. *
- value_data_type: **ASCII_Short_String_Collapsed**
- minimum_characters: **1**
- maximum_characters: **255**
- nillable: **true**

- **original_band in Band_Bin**

steward: **img**
namespace id: **pds**
class: **Band_Bin**
version: **1.1**

- definition: **The original_band attribute of a spectral qube provides the sequence of band numbers in the qube relative to some original qube. In the original qube, the values are just consecutive integers beginning with 1. In a qube which contains a subset of the bands in the original qube, the values are the original sequence numbers from that qube.**
- value_data_type: **ASCII_Integer**
- minimum_value: **1**
- maximum_value: **512**
- nillable: **false**

- **os_version in Software_Binary**

steward: **ops**
namespace id: **pds**
class: **Software_Binary**
version: **1.1**

- definition: **The OS version attribute indicates the version of an operating system.**
- value_data_type: **ASCII_Short_String_Collapsed**
- minimum_characters: **1**
- maximum_characters: **255**
- nillable: **false**

- **os_version in Software_Source**

steward: **ops**

namespace id: **pds**
class: **Software_Source**
version: **1.1**

- definition: **The OS version attribute indicates the version of an operating system.**
- value_data_type: **ASCII_Short_String_Collapsed**
- minimum_characters: **1**
- maximum_characters: **255**
- nillable: **false**

- **packet_map_mask in Telemetry_Parameters**

  steward: **img**
  namespace id: **img**
  class: **Telemetry_Parameters**
  version: **1.1**

  - definition: **The packet_map_mask attribute is a binary or hexadecimal number identifying which of a data file's expected packets were actually received. The digits correspond positionally with the relative packet numbers of the data file. The bits are to be read left to right; i.e., the first (left-most) digit of the number corresponds to the first packet of the data file. A bit value of 1 indicates that the packet was received; a value of 0 indicates that it was not received.**
  - value_data_type: **ASCII_Numeric_Base16**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **parsing_standard_id in Checksum_Manifest**

  steward: **ops**
  namespace id: **pds**
  class: **Checksum_Manifest**
  version: **1.1**

  - definition: **The parsing_standard_id attribute provides the formal name of a standard used for the structure of a Parsable Byte Stream digital object.**
  - value_data_type: **ASCII_Short_String_Collapsed** - Enumerated
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**
  - permissible value
    MD5Deep 4.n - The checksum manifest is governed by the Message-Digest Algorithm (MD5) output of the MD5 Deep Package Version 4.n.

- **parsing_standard_id in Service_Description**

  steward: **ops**
  namespace id: **pds**
  class: **Service_Description**
  version: **1.1**

  - definition: **The parsing_standard_id attribute provides the formal name of a standard used for the structure of a Parsable Byte Stream digital object.**
  - value_data_type: **ASCII_Short_String_Collapsed** - Enumerated
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**
  - permissible values
    WADL - The service is governed by the standard Web Application Description Language (WADL).
    WSDL 2.n - The service is governed by the standard Web Services Description Language (WSDL) Version 2.n.

- **parsing_standard_id in Header**

  steward: **pds**
  namespace id: **pds**
  class: **Header**
  version: **1.1**

  - definition: **The parsing_standard_id attribute provides the formal name of a standard used for the structure of a Parsable Byte Stream digital object.**
  - value_data_type: **ASCII_Short_String_Collapsed** - Enumerated
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**
  - permissible values
    7-Bit ASCII Text - The Header contains simple text using only the 7-Bit ASCII character set. ANSI X3.4-1986.

CDF 3.4 ISTP/IACG - The Header is governed by Version 3.4 of the CDF format specification, the ISTP/IACG guidelines and PDS constraints.
FITS 3.0 - The Header is governed by the standard Flexible Image Transport System (FITS), Version 3.0.
ISIS2 - The Header is governed by the standard Integrated Software for Imagers and Spectrometers (ISIS), USGS Astrogeology Isis Cube, Version 2.
ISIS3 - The Header is governed by the standard Integrated Software for Imagers and Spectrometers (ISIS), USGS Astrogeology ISIS Cube, Version 3.
PDS DSV 1 - The Header is governed by the standard Planetary Data System (PDS) Delimiter Separated Values (DSV) Format, Version 1.n.
PDS ODL 2 - The Header is governed by the standard Planetary Data System (PDS) Object Description Language (ODL), Version 2.n.
PDS3 - The Header is governed by the Planetary Data System (PDS) Data Standards Version 3.n.
Pre-PDS3 - The Header is governed by Planetary Data System (PDS) Data Standards prior to Version 3.0.
UTF-8 Text - The Header contains simple text using UTF-8 Unicode character encodings. RFC 3629.
VICAR1 - The Header is governed by the standard Video Image Communication And Retrieval (VICAR).
VICAR2 - The Header is governed by the standard Video Image Communication And Retrieval (VICAR).

- **parsing_standard_id in Parsable_Byte_Stream**

  steward: **pds**
  namespace id: **pds**
  class: **Parsable_Byte_Stream**
  version: **1.1**

  - definition: **The parsing_standard_id attribute provides the formal name of a standard used for the structure of a Parsable Byte Stream digital object.**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **parsing_standard_id in SPICE_Kernel**

  steward: **pds**
  namespace id: **pds**
  class: **SPICE_Kernel**
  version: **1.1**

  - definition: **The parsing_standard_id attribute provides the formal name of a standard used for the structure of a Parsable Byte Stream digital object.**
  - value_data_type: **ASCII_Short_String_Collapsed** - Enumerated
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**
  - permissible value
    SPICE - The SPICE_Kernel is governed by the standard Spacecraft Planet Instrument C-matrix Events (SPICE).

- **parsing_standard_id in Table_Delimited**

  steward: **pds**
  namespace id: **pds**
  class: **Table_Delimited**
  version: **1.1**

  - definition: **The parsing_standard_id attribute provides the formal name of a standard used for the structure of a Parsable Byte Stream digital object.**
  - value_data_type: **ASCII_Short_String_Collapsed** - Enumerated
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**
  - permissible value
    PDS DSV 1 - The table format is governed by the standard Planetary Data System (PDS) Delimiter Separated Values (DSV) Format, Version 1.n.

- **parsing_standard_id in XML_Schema**

  steward: **pds**
  namespace id: **pds**
  class: **XML_Schema**
  version: **1.1**

  - definition: **The parsing_standard_id attribute provides the formal name of a standard used for the structure of a Parsable Byte Stream digital object.**
  - value_data_type: **ASCII_Short_String_Collapsed** - Enumerated
  - minimum_characters: **1**
  - maximum_characters: **255**

- nillable: **false**
- permissible values
  Schematron ISO/IEC 19757-3:2006 - Schematron is governed by the standard for Schematron
  XML Schema Version 1.1 - XML_Schema is governed by the standard for XML_Schema

- **pattern in DD_Value_Domain**

  steward: **ops**
  namespace id: **pds**
  class: **DD_Value_Domain**
  version: **1.1**

  - definition: **The pattern attribute provides a symbolic instruction for forming values.**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **pattern in DD_Value_Domain_Full**

  steward: **ops**
  namespace id: **pds**
  class: **DD_Value_Domain_Full**
  version: **1.1**

  - definition: **The pattern attribute provides a symbolic instruction for forming values.**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **phone_book_flag in PDS_Affiliate**

  steward: **ops**
  namespace id: **pds**
  class: **PDS_Affiliate**
  version: **1.1**

  - definition: **The phone_book_flag attribute indicates whether or not this person should be included in the phone book.**
  - value_data_type: **ASCII_Boolean**
  - nillable: **false**

- **planetary_occultation_flag in Radio_Occultation**

  steward: **rings**
  namespace id: **rings**
  class: **Radio_Occultation**
  version: **1.1**

  - definition: *The planetary_occultation_flag is a yes-or-no flag that indicates whether a ring occultation track also intersects the planet. Required in labels of ring occultation observations. Nillable if the observation is not an occultation in which case the nil_reason should be 'inapplicable'. Normally not intended as a value for a table field. *
  - value_data_type: **ASCII_Short_String_Collapsed** - Enumerated
  - minimum_characters: **1**
  - maximum_characters: **1**
  - nillable: **false**
  - permissible values
    N - The ring occultation track does not intersect the planet.
    Y - Some portion of the ring occultation track also intersects the planet.

- **planetary_occultation_flag in Radio_Occultation_Support**

  steward: **rings**
  namespace id: **rings**
  class: **Radio_Occultation_Support**
  version: **1.1**

  - definition: *The planetary_occultation_flag is a yes-or-no flag that indicates whether a ring occultation track also intersects the planet. Required in labels of ring occultation observations. Nillable if the observation is not an occultation in which case the nil_reason should be 'inapplicable'. Normally not intended as a value for a table field. *
  - value_data_type: **ASCII_Short_String_Collapsed** - Enumerated
  - minimum_characters: **1**
  - maximum_characters: **1**
  - nillable: **false**
  - permissible values

N - The ring occultation track does not intersect the planet.
Y - Some portion of the ring occultation track also intersects the planet.

- **planetary_occultation_flag in Stellar_Occultation**

  steward: **rings**
  namespace id: **rings**
  class: **Stellar_Occultation**
  version: **1.1**

  - definition: *The planetary_occultation_flag is a yes-or-no flag that indicates whether a ring occultation track also intersects the planet. Required in labels of ring occultation observations. Nillable if the observation is not an occultation in which case the nil_reason should be 'inapplicable'. Normally not intended as a value for a table field. *
  - value_data_type: **ASCII_Short_String_Collapsed** - Enumerated
  - minimum_characters: **1**
  - maximum_characters: **1**
  - nillable: **false**
  - permissible values
    N - The ring occultation track does not intersect the planet.
    Y - Some portion of the ring occultation track also intersects the planet.

- **postal_address_text in PDS_Affiliate**

  steward: **ops**
  namespace id: **pds**
  class: **PDS_Affiliate**
  version: **1.1**

  - definition: **The postal address text attribute provides a mailing address.**
  - value_data_type: **ASCII_Text_Preserved**
  - minimum_characters: **1**
  - nillable: **false**

- **preferred_flag in Terminological_Entry**

  steward: **ops**
  namespace id: **pds**
  class: **Terminological_Entry**
  version: **1.1**

  - definition: **The preferred_flag indicates whether this entry is preferred over all other entries.**
  - value_data_type: **ASCII_Boolean**
  - nillable: **false**

- **primary_body_name in Target_PDS3**

  steward: **ops**
  namespace id: **pds**
  class: **Target_PDS3**
  version: **1.1**

  - definition: **The primary_body_name attribute identifies the primary body with which a given target body is associated as a secondary body.**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **processing_level in Primary_Result_Summary**

  steward: **pds**
  namespace id: **pds**
  class: **Primary_Result_Summary**
  version: **1.1**

  - definition: **The processing_level attribute provides a broad indication of data processing level.**
  - value_data_type: **ASCII_Short_String_Collapsed** - Enumerated
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**
  - permissible values
    Calibrated - Data converted to physical units, which makes values independent of the instrument.
    Derived - Results that have been distilled from one or more calibrated data products (for example, maps, gravity or magnetic fields, or ring particle size distributions). Supplementary data, such as calibration tables or tables of viewing geometry, used to interpret observational data should also be classified as 'derived' data if not easily matched to one of the other three categories.

Partially Processed - Data that have been processed beyond the raw stage but which have not yet reached calibrated status.

Raw - Original data from an instrument. If compression, reformatting, packetization, or other translation has been applied to facilitate data transmission or storage, those processes will be reversed so that the archived data are in a PDS approved archive format.

Telemetry - An encoded byte stream used to transfer data from one or more instruments to temporary storage where the raw instrument data will be extracted.

- **processing_level_id in Primary_Result_Summary**

  steward: **pds**
  namespace id: **pds**
  class: **Primary_Result_Summary**
  version: **1.1**

  - definition: **The processing_level_id attribute provides a broad indication of data processing level.**
  - value_data_type: **ASCII_Short_String_Collapsed** - Enumerated
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**
  - permissible values
    Calibrated - Data converted to physical units, which makes values independent of the instrument.
    Derived - Results that have been distilled from one or more calibrated data products (for example, maps, gravity or magnetic fields, or ring particle size distributions). Supplementary data, such as calibration tables or tables of viewing geometry, used to interpret observational data should also be classified as 'derived' data if not easily matched to one of the other three categories.
    Partially Processed - Data that have been processed beyond the raw stage but which have not yet reached calibrated status.
    Raw - Original data from an instrument. If compression, reformatting, packetization, or other translation has been applied to facilitate data transmission or storage, those processes will be reversed so that the archived data are in a PDS approved archive format.
    Telemetry - An encoded byte stream used to transfer data from one or more instruments to temporary storage where the raw instrument data will be extracted.

- **producer_full_name in Data_Set_PDS3**

  steward: **ops**
  namespace id: **pds**
  class: **Data_Set_PDS3**
  version: **1.1**

  - definition: **The producer_full_name attribute provides the full_name of the individual mainly responsible for the production of the data set. This individual does not have to be registered with the PDS.**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **product_class in Identification_Area**

  steward: **pds**
  namespace id: **pds**
  class: **Identification_Area**
  version: **1.1**

  - definition: **The product_class attribute provides the name of the product class. For example the value of the attribute product_class must be Product_Document for any Product_Document.**
  - value_data_type: **ASCII_Short_String_Collapsed** - Enumerated
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**
  - permissible values
    Product_AIP - This is a product of type Product_AIP
    Product_Attribute_Definition - This is a product of type Product_Attribute_Definition
    Product_Browse - This is a product of type Product_Browse
    Product_Bundle - This is a product of type Product_Bundle
    Product_Class_Definition - This is a product of type Product_Class_Definition
    Product_Collection - This is a product of type Product_Collection
    Product_Context - This is a product of type Product_Context
    Product_DIP - This is a product of type Product_DIP
    Product_DIP_Deep_Archive - This is a product of type Product_DIP_Deep_Archive
    Product_Data_Set_PDS3 - This is a product of type Product_Data_Set_PDS3
    Product_Document - This is a product of type Product_Document
    Product_File_Repository - This is a product of type Product_File_Repository
    Product_File_Text - This is a product of type Product_File_Text
    Product_Instrument_Host_PDS3 - This is a product of type Product_Instrument_Host_PDS3
    Product_Instrument_PDS3 - This is a product of type Product_Instrument_PDS3

- **Product_Mission_PDS3** - This is a product of type Product_Mission_PDS3
- **Product_Observational** - This is a product of type Product_Observational
- **Product_Proxy_PDS3** - This is a product of type Product_Proxy_PDS3
- **Product_SIP** - This is a product of type Product_SIP
- **Product_SPICE_Kernel** - This is a product of type Product_SPICE_Kernel
- **Product_Service** - This is a product of type Product_Service
- **Product_Software** - This is a product of type Product_Software
- **Product_Subscription_PDS3** - This is a product of type Product_Subscription_PDS3
- **Product_Target_PDS3** - This is a product of type Product_Target_PDS3
- **Product_Thumbnail** - This is a product of type Product_Thumbnail
- **Product_Update** - This is a product of type Product_Update
- **Product_Volume_PDS3** - This is a product of type Product_Volume_PDS3
- **Product_Volume_Set_PDS3** - This is a product of type Product_Volume_Set_PDS3
- **Product_XML_Schema** - This is a product of type Product_XML_Schema
- **Product_Zipped** - This is a product of type Product_Zipped
  - schematron rule: **The ROOT element must be one of the allowed types.**

- **program_notes_id in Software_Binary**

  steward: **ops**
  namespace id: **pds**
  class: **Software_Binary**
  version: **1.1**

  - definition: **The program notes id attribute provides an identifier to a brief statement giving particulars about a software program.**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **program_notes_id in Software_Source**

  steward: **ops**
  namespace id: **pds**
  class: **Software_Source**
  version: **1.1**

  - definition: **The program notes id attribute provides an identifier to a brief statement giving particulars about a software program.**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **programmers_manual_id in Software**

  steward: **ops**
  namespace id: **pds**
  class: **Software**
  version: **1.1**

  - definition: **The programmers manual id attribute provides an identifier to a document giving instruction about the programming of the software.**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **publication_date in Volume_PDS3**

  steward: **ops**
  namespace id: **pds**
  class: **Volume_PDS3**
  version: **1.1**

  - definition: **The publication_date attribute provides the date on which an item was published.**
  - value_data_type: **ASCII_Date_YMD**
  - format: **YYYY-MM-DD**
  - nillable: **true**

- **publication_date in Document**

  steward: **pds**
  namespace id: **pds**
  class: **Document**

version: **1.1**

- definition: **The publication_date attribute provides the date on which an item was published.**
- value_data_type: **ASCII_Date_YMD**
- format: **YYYY-MM-DD**
- nillable: **true**

- **publication_year in Citation_Information**

steward: **pds**
namespace id: **pds**
class: **Citation_Information**
version: **1.1**

- definition: **The publication_year attribute provides the year in which the product should be considered as published. Generally, this will be the year the data were declared "Certified" or "Archived".**
- value_data_type: **ASCII_Date**
- format: **YYYY-MM-DD/YYYY-DOY**
- nillable: **false**

- **purpose in Primary_Result_Summary**

steward: **pds**
namespace id: **pds**
class: **Primary_Result_Summary**
version: **1.1**

- definition: **The purpose attribute provides an indication of the primary purpose of the observations included.**
- value_data_type: **ASCII_Short_String_Collapsed** - Enumerated
- minimum_characters: **1**
- maximum_characters: **255**
- nillable: **false**
- permissible values
  Calibration - Data collected to determine the relationship between measurement values and physical units.
  Checkout - Data collected during operational tests
  Engineering - Data collected about support systems and structures, which are ancillary to the primary measurements.
  Navigation - Data collected to support navigation
  Science - Data collected primarily to answer questions about the targets of the investigation.

- **radial_resolution in Radio_Occultation**

steward: **rings**
namespace id: **rings**
class: **Radio_Occultation**
version: **1.1**

- definition: *radial_resolution indicates the nominal radial distance over which changes in ring properties can be detected within a data product. Note: this value may be larger than the radial_sampling_interval value, because a data product can be over-sampled. Required in labels if the value is fixed, as it is for stellar occultations. If the value varies, the corresponding minimum and maximum attributes must be used instead. Nillable if the observation is not a ring occultation in which case the nil_reason should be 'inapplicable'. Not intended to be used as a table field. *
- value_data_type: **ASCII_Real**
- unit_of_measure_type: **Units_of_Length**
- valid units: **AU, Angstrom, cm, km, m, micrometer, mm, nm**
- nillable: **false**

- **radial_resolution in Stellar_Occultation**

steward: **rings**
namespace id: **rings**
class: **Stellar_Occultation**
version: **1.1**

- definition: *radial_resolution indicates the nominal radial distance over which changes in ring properties can be detected within a data product. Note: this value may be larger than the radial_sampling_interval value, because a data product can be over-sampled. Required in labels if the value is fixed, as it is for stellar occultations. If the value varies, the corresponding minimum and maximum attributes must be used instead. Nillable if the observation is not a ring occultation in which case the nil_reason should be 'inapplicable'. Not intended to be used as a table field. *
- value_data_type: **ASCII_Real**
- unit_of_measure_type: **Units_of_Length**
- valid units: **AU, Angstrom, cm, km, m, micrometer, mm, nm**
- nillable: **false**

- **radial_sampling_interval in Radio_Occultation**

steward: **rings**
namespace id: **rings**
class: **Radio_Occultation**
version: **1.1**

- definition: *radial_sampling_interval indicates the radial spacing between consecutive points in a ring profile. In practice, this may be somewhat smaller than the radial_resolution because a profile may be over-sampled. Required in labels if the value is fixed. If the value varies, the corresponding minimum and and maximum attributes must be used instead. Nillable if the observation is not a ring occultation in which case the nil_reason should be 'inapplicable'. Not intended to be used as a table field. *
- value_data_type: **ASCII_Real**
- unit_of_measure_type: **Units_of_Length**
- valid units: **AU, Angstrom, cm, km, m, micrometer, mm, nm**
- nillable: **false**

- **radial_sampling_interval in Stellar_Occultation**

  steward: **rings**
  namespace id: **rings**
  class: **Stellar_Occultation**
  version: **1.1**

  - definition: *radial_sampling_interval indicates the radial spacing between consecutive points in a ring profile. In practice, this may be somewhat smaller than the radial_resolution because a profile may be over-sampled. Required in labels if the value is fixed. If the value varies, the corresponding minimum and and maximum attributes must be used instead. Nillable if the observation is not a ring occultation in which case the nil_reason should be 'inapplicable'. Not intended to be used as a table field. *
  - value_data_type: **ASCII_Real**
  - unit_of_measure_type: **Units_of_Length**
  - valid units: **AU, Angstrom, cm, km, m, micrometer, mm, nm**
  - nillable: **false**

- **received_packets in Telemetry_Parameters**

  steward: **img**
  namespace id: **img**
  class: **Telemetry_Parameters**
  version: **1.1**

  - definition: **The received_packets attribute provides the total number of telemetry packets which constitute a reconstructed data product, cf. expected_packets.**
  - value_data_type: **ASCII_Integer**
  - minimum_value: **0**
  - nillable: **false**

- **record_delimiter in Stream_Text**

  steward: **pds**
  namespace id: **pds**
  class: **Stream_Text**
  version: **1.1**

  - definition: **The record_delimiter attribute provides the character or characters used to indicate the end of a record.**
  - value_data_type: **ASCII_Short_String_Collapsed** - Enumerated
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**
  - permissible value
    carriage-return line-feed - Records in the delimited table are delimited by ASCII carriage-return line-feed pairs (0x0D0x0A)

- **record_delimiter in Table_Binary**

  steward: **pds**
  namespace id: **pds**
  class: **Table_Binary**
  version: **1.1**

  - definition: **The record_delimiter attribute provides the character or characters used to indicate the end of a record.**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **record_delimiter in Table_Character**

  steward: **pds**
  namespace id: **pds**
  class: **Table_Character**
  version: **1.1**

  - definition: **The record_delimiter attribute provides the character or characters used to indicate the end of a record.**
  - value_data_type: **ASCII_Short_String_Collapsed** - Enumerated
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**
  - permissible value
    carriage-return line-feed - Records in the delimited table are delimited by ASCII carriage-return line-feed pairs (0x0D0x0A)

- **record_delimiter in Table_Delimited**

  steward: **pds**
  namespace id: **pds**
  class: **Table_Delimited**
  version: **1.1**

  - definition: **The record_delimiter attribute provides the character or characters used to indicate the end of a record.**
  - value_data_type: **ASCII_Short_String_Collapsed** - Enumerated
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**
  - permissible value
    carriage-return line-feed - Records in the delimited table are delimited by ASCII carriage-return line-feed pairs (0x0D0x0A)

- **record_length in Record_Binary**

  steward: **pds**
  namespace id: **pds**
  class: **Record_Binary**
  version: **1.1**

  - definition: **The record_length attribute provides the length of a record, including a record delimiter, if present.**
  - value_data_type: **ASCII_Integer**
  - minimum_value: **1**
  - unit_of_measure_type: **Units_of_Storage**
  - valid units: **byte**
  - specified_unit_id: **byte**
  - nillable: **false**

- **record_length in Record_Character**

  steward: **pds**
  namespace id: **pds**
  class: **Record_Character**
  version: **1.1**

  - definition: **The record_length attribute provides the length of a record, including the record delimiter.**
  - value_data_type: **ASCII_Integer**
  - minimum_value: **1**
  - unit_of_measure_type: **Units_of_Storage**
  - valid units: **byte**
  - specified_unit_id: **byte**
  - nillable: **false**

- **records in File**

  steward: **pds**
  namespace id: **pds**
  class: **File**
  version: **1.1**

  - definition: **The records attribute provides a count of records.**
  - value_data_type: **ASCII_Integer**
  - minimum_value: **1**
  - nillable: **false**

- **records in Table_Base**

  steward: **pds**
  namespace id: **pds**
  class: **Table_Base**
  version: **1.1**

    - definition: **The records attribute provides a count of records.**
    - value_data_type: **ASCII_Integer**
    - minimum_value: **1**
    - nillable: **false**

- **records in Table_Delimited**

  steward: **pds**
  namespace id: **pds**
  class: **Table_Delimited**
  version: **1.1**

    - definition: **The records attribute provides a count of records.**
    - value_data_type: **ASCII_Integer**
    - minimum_value: **1**
    - nillable: **false**

- **reference_frame_id in Vector**

  steward: **pds**
  namespace id: **pds**
  class: **Vector**
  version: **1.1**

    - definition: **The reference frame id attribute identifies a reference frame, an origin and set of axes, the physical realization of a reference system, i.e., the reference frame orientation and axes are established by the reported coordinates of datum points in the reference system.**
    - value_data_type: **ASCII_Short_String_Collapsed** - Enumerated
    - minimum_characters: **1**
    - maximum_characters: **255**
    - nillable: **true**
    - permissible values
      ICRF - International celestial reference frame
      MOON_ME_DE421 - Moon mean Earth based on JPL DE421

- **reference_frame_id in Vector_Cartesian_3**

  steward: **pds**
  namespace id: **pds**
  class: **Vector_Cartesian_3**
  version: **1.1**

    - definition: **The reference frame id attribute identifies a reference frame, an origin and set of axes, the physical realization of a reference system, i.e., the reference frame orientation and axes are established by the reported coordinates of datum points in the reference system.**
    - value_data_type: **ASCII_Short_String_Collapsed** - Enumerated
    - minimum_characters: **1**
    - maximum_characters: **255**
    - nillable: **false**
    - permissible values
      ICRF - International celestial reference frame
      MOON_ME_DE421 - Moon mean Earth based on JPL DE421

- **reference_text in External_Reference**

  steward: **pds**
  namespace id: **pds**
  class: **External_Reference**
  version: **1.1**

    - definition: **The reference_text attribute provides a complete bibliographic citation for a published work.**
    - value_data_type: **ASCII_Text_Preserved**
    - minimum_characters: **1**
    - nillable: **false**

- **reference_time_utc in Radio_Occultation**

  steward: **rings**

namespace id: **rings**
class: **Radio_Occultation**
version: **1.1**

- definition: *reference_time_utc provides a date and time in UTC format. Given in a label when time values in a table are given as elapsed seconds offset from a reference time. Specifically required in the label for radio occultation data, but is not used for stellar occultation data. Required in the label for radio occultation data, or anytime spacecraft_event_time is a table field. Not used for stellar occultations. Nillable, the nil_reason should be 'inapplicable'. *
- value_data_type: **ASCII_Date_Time_UTC**
- format: **YYYY-MM-DDTHH:MM:SS.SSSZ/YYYY-DOYTHH:MM:SS.SSSZ**
- nillable: **true**

- **reference_time_utc in Radio_Occultation_Support**

steward: **rings**
namespace id: **rings**
class: **Radio_Occultation_Support**
version: **1.1**

- definition: *reference_time_utc provides a date and time in UTC format. Given in a label when time values in a table are given as elapsed seconds offset from a reference time. Specifically required in the label for radio occultation data, but is not used for stellar occultation data. Required in the label for radio occultation data, or anytime spacecraft_event_time is a table field. Not used for stellar occultations. Nillable, the nil_reason should be 'inapplicable'. *
- value_data_type: **ASCII_Date_Time_UTC**
- format: **YYYY-MM-DDTHH:MM:SS.SSSZ/YYYY-DOYTHH:MM:SS.SSSZ**
- nillable: **true**

- **reference_type in DD_Association**

steward: **ops**
namespace id: **pds**
class: **DD_Association**
version: **1.1**

- definition: **The reference_type attribute provides the name of the association.**
- value_data_type: **ASCII_Short_String_Collapsed** - Enumerated
- minimum_characters: **1**
- maximum_characters: **255**
- nillable: **false**
- permissible values
  attribute_of - The referenced attribute is a member of this class
  component_of - The referenced class is a component of this class
  extension_of - The referenced class is an extension of this class
  restriction_of - The referenced class is a restriction of this class
  subclass_of - The referenced class is a subclass of this class

- **reference_type in DD_Association_External**

steward: **ops**
namespace id: **pds**
class: **DD_Association_External**
version: **1.1**

- definition: **The reference_type attribute provides the name of the association.**
- value_data_type: **ASCII_Short_String_Collapsed** - Enumerated
- minimum_characters: **1**
- maximum_characters: **255**
- nillable: **false**
- permissible values
  attribute_of - The referenced attribute is a member of this class
  component_of - The referenced class is a component of this class
  extension_of - The referenced class is an extension of this class
  restriction_of - The referenced class is a restriction of this class
  subclass_of - The referenced class is a subclass of this class

- **reference_type in Bundle_Member_Entry**

steward: **pds**
namespace id: **pds**
class: **Bundle_Member_Entry**
version: **1.1**

- definition: **The reference_type attribute provides the name of the association.**
- value_data_type: **ASCII_Short_String_Collapsed** - Enumerated
- minimum_characters: **1**

- maximum_characters: **255**
- nillable: **false**
- permissible values
  bundle_has_browse_collection - The bundle has a browse collection member
  bundle_has_calibration_collection - The bundle has a calibration collection member
  bundle_has_context_collection - The bundle has a context collection member
  bundle_has_data_collection - The bundle has a data collection member
  bundle_has_document_collection - The bundle has a document collection member
  bundle_has_geometry_collection - The bundle has a geometry collection member
  bundle_has_member_collection - The bundle has a member collection member
  bundle_has_schema_collection - The bundle has a schema collection member
  bundle_has_spice_kernel_collection - The bundle has a spice kernel collection member

- **reference_type in Internal_Reference**

  steward: **pds**
  namespace id: **pds**
  class: **Internal_Reference**
  version: **1.1**

  - definition: **The reference_type attribute provides the name of the association.**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**
  - Extended Permissible Values for: pds:Observing_System_Component/pds:Internal_Reference
    is_instrument - The referenced class is a context product describing the instrument.
    is_instrument_host - The referenced class is a context product describing the instrument_host
    is_other - The referenced class is a context product describing something not classified
    is_facility - The referenced class is a context product describing the facility
    is_telescope - The referenced class is a context product describing the telescope
  - Extended Permissible Values for: pds:Product_AIP/pds:Information_Package_Component/pds:Internal_Reference
    package_has_collection - The Archival Information Package contains a Collection.
    package_has_bundle - The Archival Information Package contains a Bundle.
    package_has_product - The Archival Information Package contains a basic Product.
    package_compiled_from_package - The Archival Information Package is compiled from a Submission Information Package.
  - Extended Permissible Values for: pds:Product_Browse/pds:Reference_List/pds:Internal_Reference
    browse_to_data - The browse product is associated to a data product
    browse_to_thumbnail - The browse product is associated to a thumbnail
  - Extended Permissible Value for:
    pds:Product_Bundle/pds:Context_Area/pds:Investigation_Area/pds:Internal_Reference
    bundle_to_investigation - The bundle is associated to an investigation
  - Extended Permissible Values for: pds:Product_Bundle/pds:Reference_List/pds:Internal_Reference
    bundle_to_errata - The bundle is associated to an errata document
    bundle_to_document - The bundle is associated to a document
    bundle_to_investigation - The bundle is associated to an investigation
    bundle_to_instrument - The bundle is associated to an instrument
    bundle_to_instrument_host - The bundle is associated to an instrument host
    bundle_to_target - The bundle is associated to a target
    bundle_to_associate - The bundle is associated to product
  - Extended Permissible Value for:
    pds:Product_Collection/pds:Context_Area/pds:Investigation_Area/pds:Internal_Reference
    collection_to_investigation - The collection is associated to an investigation
  - Extended Permissible Values for: pds:Product_Collection/pds:Reference_List/pds:Internal_Reference
    collection_to_resource - The collection is associated to a resource
    collection_to_associate - The collection is associated to product
    collection_to_calibration - The collection is associated to calibration data
    collection_to_geometry - The collection is associated to geometry
    collection_to_spice_kernel - The collection is associated to spice kernels
    collection_curated_by_node - The collection is curated by the referenced node
    collection_to_document - The collection is associated to a document
    collection_to_browse - The collection is associated to a browse product
    collection_to_context - The collection is associated to a context product
    collection_to_data - The collection is associated to a data product
    collection_to_schema - The collection is associated to a schema document
    collection_to_errata - The collection is associated to an errata document
    collection_to_bundle - The collection is associated to a bundle
    collection_to_personnel - The collection is associated to personnel
    collection_to_investigation - The collection is associated to an investigation
    collection_to_instrument - The collection is associated to an instrument
    collection_to_instrument_host - The collection is associated to an instrument host
    collection_to_target - The collection is associated to a target
    collection_to_associate - The collection is associated to product
  - Extended Permissible Values for: pds:Product_Context/pds:Reference_List/pds:Internal_Reference
    context_to_associate - The context product is associated to a product
    instrument_host_to_investigation - The instrument host is associated to an investigation
    instrument_host_to_document - The instrument host is associated to a document

instrument_host_to_target - The instrument host is associated to a target
instrument_to_instrument_host - The instrument is associated to an instrument host
instrument_to_document - The instrument is associated to a document
investigation_to_target - The investigation is associated to a target
investigation_to_document - The investigation is associated to a document
node_to_personnel - The node is associated to a person
node_to_agency - The node is associated to an agency
node_to_manager - The node is associated to a manager
node_to_operator - The node is associated to an operator
node_to_data_archivist - The node is associated to a data archivist
resource_to_instrument - The resource is associated to an instrument
resource_to_instrument_host - The resource is associated to an instrument host
resource_to_investigation - The resource is associated to an investigation
resource_to_target - The resource is associated to a target
target_to_document - The target is associated to a document

- Extended Permissible Values for: pds:Product_DIP/pds:Information_Package_Component/pds:Internal_Reference
package_has_collection - The Dissemination Information Package contains a Collection.
package_has_bundle - The Dissemination Information Package contains a Bundle.
package_has_product - The Dissemination Information Package contains a basic Product.
package_compiled_from_package - The Dissemination Information Package is compiled from an Archival Information Package.

- Extended Permissible Values for:
pds:Product_DIP_Deep_Archive/pds:Information_Package_Component/pds:Internal_Reference
package_has_collection - The Dissemination Information Package contains a Collection.
package_has_bundle - The Dissemination Information Package contains a Bundle.
package_has_product - The Dissemination Information Package contains a basic Product.
package_compiled_from_package - The Dissemination Information Package is compiled from an Archival Information Package.

- Extended Permissible Value for:
pds:Product_Document/pds:Context_Area/pds:Investigation_Area/pds:Internal_Reference
document_to_investigation - The document is associated to an investigation

- Extended Permissible Value for:
pds:Product_Document/pds:Context_Area/pds:Target_Identification/pds:Internal_Reference
document_to_target - The document is associated to a target

- Extended Permissible Values for: pds:Product_Document/pds:Reference_List/pds:Internal_Reference
document_to_associate - The document is associated to product
document_to_investigation - The document is associated to an investigation
document_to_instrument_host - The document is associated to an instrument_host
document_to_instrument - The document is associated to an instrument
document_to_target - The document is associated to a target

- Extended Permissible Value for:
pds:Product_Observational/pds:Observation_Area/pds:Investigation_Area/pds:Internal_Reference
data_to_investigation - The data product is associated to an investigation

- Extended Permissible Values for: pds:Product_Observational/pds:Reference_List/pds:Internal_Reference
data_to_resource - The data product is associated to a resource
data_to_calibration_document - The data product is associated to a calibration document
data_to_calibration_product - The data product is associated to a calibration product
data_to_raw_product - The data product is associated to a raw product
data_to_calibrated_product - The data product is associated to a calibrated product
data_to_geometry - The data product is associated to geometry
data_to_spice_kernel - The data product is associated to spice kernel(s)
data_to_thumbnail - The data product is associated to a thumbnail
data_to_document - The data product is associated to a document
data_curated_by_node - The data product is curated by the referenced node
data_to_browse - The data product is associated to a browse product
data_to_ancillary_data - The referencing data product requires the referenced data product to provide specific support for its own use. For example, a table with footnotes can be archived as two products: a data table file with a field giving a footnote code number; and a footnotes file sorted by those code numbers. The label of the data table would then reference the footnotes file with an association type of "data_to_ancillary_data".

- Extended Permissible Values for: pds:Product_SIP/pds:Information_Package_Component/pds:Internal_Reference
package_has_collection - The Submission Information Package contains a Collection.
package_has_bundle - The Submission Information Package contains a Bundle.
package_has_product - The Submission Information Package is contains a basic Product.

- Extended Permissible Value for: pds:Product_Zipped/pds:Internal_Reference
zip_to_package - The zip file contains a copy of the package

- Extended Permissible Values for: pds:Target_Identification/pds:Internal_Reference
data_to_target - The data product is associated to a target
collection_to_target - The collection is associated to a target
bundle_to_target - The bundle is associated to a target
document_to_target - The document is associated to a target

- Extended Permissible Values for: pds:Update_Entry/pds:Internal_Reference
data_to_update - The data product is associated to an update product
collection_to_update - The collection is associated to an update product
bundle_to_update - The bundle is associated to an update product

- **reference_type in Inventory**

steward: **pds**

namespace id: **pds**
class: **Inventory**
version: **1.1**

- definition: **The reference_type attribute provides the name of the association.**
- value_data_type: **ASCII_Short_String_Collapsed** - Enumerated
- minimum_characters: **1**
- maximum_characters: **255**
- nillable: **false**
- permissible value
  inventory_has_member_product - The collection inventory has member products identified by either LIDVID or LID references

- **registered_by in DD_Attribute_Full**

  steward: **ops**
  namespace id: **pds**
  class: **DD_Attribute_Full**
  version: **1.1**

  - definition: **The registered_by attribute provides the name of the person or organization that registered the object.**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **registered_by in DD_Class_Full**

  steward: **ops**
  namespace id: **pds**
  class: **DD_Class_Full**
  version: **1.1**

  - definition: **The registered_by attribute provides the name of the person or organization that registered the object.**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **registration_authority_id in DD_Attribute_Full**

  steward: **ops**
  namespace id: **pds**
  class: **DD_Attribute_Full**
  version: **1.1**

  - definition: **The registration_authority_id attribute provides the name of the organization that registered the object.**
  - value_data_type: **ASCII_Short_String_Collapsed** - Enumerated
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**
  - permissible value
    0001_NASA_PDS_1 - The Attribute Registration_Authority is 0001_NASA_PDS_1

- **registration_authority_id in DD_Class_Full**

  steward: **ops**
  namespace id: **pds**
  class: **DD_Class_Full**
  version: **1.1**

  - definition: **The registration_authority_id attribute provides the name of the organization that registered the object.**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **registration_date in PDS_Affiliate**

  steward: **ops**
  namespace id: **pds**
  class: **PDS_Affiliate**

version: **1.1**

- definition: **The registration_date attribute provides the date of registration within the PDS system.**
- value_data_type: **ASCII_Date_YMD**
- format: **YYYY-MM-DD**
- nillable: **false**

- **registration_date in PDS_Guest**

  steward: **ops**
  namespace id: **pds**
  class: **PDS_Guest**
  version: **1.1**

  - definition: **The registration_date attribute provides the date of registration within the PDS system.**
  - value_data_type: **ASCII_Date_YMD**
  - format: **YYYY-MM-DD**
  - nillable: **false**

- **repetitions in Group**

  steward: **pds**
  namespace id: **pds**
  class: **Group**
  version: **1.1**

  - definition: **The repetitions attribute provides the number of times a set of repeating fields and, possibly, (sub)groups is replicated within a group.**
  - value_data_type: **ASCII_Integer**
  - minimum_value: **1**
  - nillable: **false**

- **revision_id in Document**

  steward: **pds**
  namespace id: **pds**
  class: **Document**
  version: **1.1**

  - definition: **The revision_id attribute provides the revision level of a document, which may be set outside PDS and may be different from its version_id.**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **ring_event_start_tdb in Radio_Occultation**

  steward: **rings**
  namespace id: **rings**
  class: **Radio_Occultation**
  version: **1.1**

  - definition: *ring_event_start_tdb indicates the value for earliest time in the described data, and is given in ring_event_tdb format. Optional in labels; not intended for use as a table field. Nillable if the observation is not a ring occultation in which case the nil_reason should be 'inapplicable'. *
  - value_data_type: **ASCII_Real**
  - unit_of_measure_type: **Units_of_Time**
  - valid units: **day, hr, julian day, microseconds, min, ms, s, yr**
  - nillable: **false**

- **ring_event_start_tdb in Stellar_Occultation**

  steward: **rings**
  namespace id: **rings**
  class: **Stellar_Occultation**
  version: **1.1**

  - definition: *ring_event_start_tdb indicates the value for earliest time in the described data, and is given in ring_event_tdb format. Optional in labels; not intended for use as a table field. Nillable if the observation is not a ring occultation in which case the nil_reason should be 'inapplicable'. *
  - value_data_type: **ASCII_Real**
  - unit_of_measure_type: **Units_of_Time**
  - valid units: **day, hr, julian day, microseconds, min, ms, s, yr**
  - nillable: **false**

- **ring_event_start_time_utc in Radio_Occultation**

  steward: **rings**
  namespace id: **rings**
  class: **Radio_Occultation**
  version: **1.1**

  - definition: *ring_event_start_time_utc gives the UTC time corresponding to the earliest time given by ring_event_time or ring_event_tdb in the data table. ring_event_start_time_utc is required for all ring occultation data. ring_event_start_time_utc is required label attribute for all ring occultation data. Nillable if the observation is not a ring occultation in which case the nil_reason should be 'inapplicable'. *
  - value_data_type: **ASCII_Date_Time_UTC**
  - format: **YYYY-MM-DDTHH:MM:SS.SSSZ/YYYY-DOYTHH:MM:SS.SSSZ**
  - nillable: **true**

- **ring_event_start_time_utc in Stellar_Occultation**

  steward: **rings**
  namespace id: **rings**
  class: **Stellar_Occultation**
  version: **1.1**

  - definition: *ring_event_start_time_utc gives the UTC time corresponding to the earliest time given by ring_event_time or ring_event_tdb in the data table. ring_event_start_time_utc is required for all ring occultation data. ring_event_start_time_utc is required label attribute for all ring occultation data. Nillable if the observation is not a ring occultation in which case the nil_reason should be 'inapplicable'. *
  - value_data_type: **ASCII_Date_Time_UTC**
  - format: **YYYY-MM-DDTHH:MM:SS.SSSZ/YYYY-DOYTHH:MM:SS.SSSZ**
  - nillable: **true**

- **ring_event_stop_tdb in Radio_Occultation**

  steward: **rings**
  namespace id: **rings**
  class: **Radio_Occultation**
  version: **1.1**

  - definition: *ring_event_stop_tdb indicates the value for latest time in the described data, and is given in ring_event_tdb format. Optional in labels; not intended for use as a table field. Nillable if the observation is not a ring occultation in which case the nil_reason should be 'inapplicable'. *
  - value_data_type: **ASCII_Real**
  - unit_of_measure_type: **Units_of_Time**
  - valid units: **day, hr, julian day, microseconds, min, ms, s, yr**
  - nillable: **false**

- **ring_event_stop_tdb in Stellar_Occultation**

  steward: **rings**
  namespace id: **rings**
  class: **Stellar_Occultation**
  version: **1.1**

  - definition: *ring_event_stop_tdb indicates the value for latest time in the described data, and is given in ring_event_tdb format. Optional in labels; not intended for use as a table field. Nillable if the observation is not a ring occultation in which case the nil_reason should be 'inapplicable'. *
  - value_data_type: **ASCII_Real**
  - unit_of_measure_type: **Units_of_Time**
  - valid units: **day, hr, julian day, microseconds, min, ms, s, yr**
  - nillable: **false**

- **ring_event_stop_time_utc in Radio_Occultation**

  steward: **rings**
  namespace id: **rings**
  class: **Radio_Occultation**
  version: **1.1**

  - definition: *ring_event_stop_time_utc gives the UTC time corresponding to the latest time given by ring_event_time or ring_event_tdb in the data table. ring_event_stop_time_utc is required for all ring occultation data. ring_event_stop_time_utc is required label attribute for all ring occultation data. Nillable if the observation is not a ring occultation in which case the nil_reason should be 'inapplicable'. *
  - value_data_type: **ASCII_Date_Time_UTC**
  - format: **YYYY-MM-DDTHH:MM:SS.SSSZ/YYYY-DOYTHH:MM:SS.SSSZ**
  - nillable: **true**

- **ring_event_stop_time_utc in Stellar_Occultation**

steward: **rings**
namespace id: **rings**
class: **Stellar_Occultation**
version: **1.1**

- definition: *ring_event_stop_time_utc gives the UTC time corresponding to the latest time given by ring_event_time or ring_event_tdb in the data table. ring_event_stop_time_utc is required for all ring occultation data. ring_event_stop_time_utc is required label attribute for all ring occultation data. Nillable if the observation is not a ring occultation in which case the nil_reason should be 'inapplicable'. *
- value_data_type: **ASCII_Date_Time_UTC**
- format: **YYYY-MM-DDTHH:MM:SS.SSSZ/YYYY-DOYTHH:MM:SS.SSSZ**
- nillable: **true**

- **ring_observation_id in Radio_Occultation**

  steward: **rings**
  namespace id: **rings**
  class: **Radio_Occultation**
  version: **1.1**

  - definition: *The ring_observation_id uniquely identifies a single experiment or observation (image, occultation profile, spectrum, etc.) within a rings-related data set. This is the common id by which data are identified within the Rings Node catalog. It describes the smallest quantity of data that can be usefully cataloged or analyzed by itself. Note that a single observation may be associated with multiple data products (e.g. raw and calibrated versions of an image). Note also that a single data product may be associated with multiple observations (e.g. a single WFPC2 image file containing four different images). A ring observation id is constructed using numbers, upper case letters, forward slash, colon, period, dash, and underscore as follows: p/type/host/inst/time/... where p is a single-letter planet id (one of J, S, U, or N); type is IMG for images, OCC for occultation profile, etc.; host is the instrument host id, inst is the instrument id; time is the observation time as a date or instrument clock count; further information identifying the observation can then be appended as appropriate. Optional in labels. Nillable, in which case the nil_reason should be 'inapplicable'. Examples: J/IMG/VG2/ISS/20693.01/N J/IMG/VG2/ISS/20693.02/W S/IMG/HST/WFPC2/1995-08-10/U2TF020B/PC1 U/OCC/VG2/RSS/1986-01-24/S U/OCC/VG2/RSS/1986-01-24/X N/OCC/VG2/PPS/1989-08-25/SIGMA_SGR *
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **true**

- **ring_observation_id in Radio_Occultation_Support**

  steward: **rings**
  namespace id: **rings**
  class: **Radio_Occultation_Support**
  version: **1.1**

  - definition: *The ring_observation_id uniquely identifies a single experiment or observation (image, occultation profile, spectrum, etc.) within a rings-related data set. This is the common id by which data are identified within the Rings Node catalog. It describes the smallest quantity of data that can be usefully cataloged or analyzed by itself. Note that a single observation may be associated with multiple data products (e.g. raw and calibrated versions of an image). Note also that a single data product may be associated with multiple observations (e.g. a single WFPC2 image file containing four different images). A ring observation id is constructed using numbers, upper case letters, forward slash, colon, period, dash, and underscore as follows: p/type/host/inst/time/... where p is a single-letter planet id (one of J, S, U, or N); type is IMG for images, OCC for occultation profile, etc.; host is the instrument host id, inst is the instrument id; time is the observation time as a date or instrument clock count; further information identifying the observation can then be appended as appropriate. Optional in labels. Nillable, in which case the nil_reason should be 'inapplicable'. Examples: J/IMG/VG2/ISS/20693.01/N J/IMG/VG2/ISS/20693.02/W S/IMG/HST/WFPC2/1995-08-10/U2TF020B/PC1 U/OCC/VG2/RSS/1986-01-24/S U/OCC/VG2/RSS/1986-01-24/X N/OCC/VG2/PPS/1989-08-25/SIGMA_SGR *
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **true**

- **ring_observation_id in Rings_Supplement**

  steward: **rings**
  namespace id: **rings**
  class: **Rings_Supplement**
  version: **1.1**

  - definition: *The ring_observation_id uniquely identifies a single experiment or observation (image, occultation profile, spectrum, etc.) within a rings-related data set. This is the common id by which data are identified within the Rings Node catalog. It describes the smallest quantity of data that can be usefully cataloged or analyzed by itself. Note that a single observation may be associated with multiple data products (e.g. raw and calibrated versions of an image). Note also that a single data product may be associated with multiple observations (e.g. a single WFPC2 image file containing four different images). A ring observation id is constructed using numbers, upper case letters, forward slash, colon, period, dash, and underscore as follows: p/type/host/inst/time/... where p is a single-letter

planet id (one of J, S, U, or N); type is IMG for images, OCC for occultation profile, etc.; host is the instrument host id, inst is the instrument id; time is the observation time as a date or instrument clock count; further information identifying the observation can then be appended as appropriate. Optional in labels. Nillable, in which case the nil_reason should be 'inapplicable'. Examples: J/IMG/VG2/ISS/20693.01/N J/IMG/VG2/ISS/20693.02/W S/IMG/HST/WFPC2/1995-08-10/U2TF020B/PC1 U/OCC/VG2/RSS/1986-01-24/S U/OCC/VG2/RSS/1986-01-24/X N/OCC/VG2/PPS/1989-08-25/SIGMA_SGR *

- value_data_type: **ASCII_Short_String_Collapsed**
- minimum_characters: **1**
- maximum_characters: **255**
- nillable: **true**

- **ring_observation_id in Stellar_Occultation**

  steward: **rings**
  namespace id: **rings**
  class: **Stellar_Occultation**
  version: **1.1**

    - definition: *The ring_observation_id uniquely identifies a single experiment or observation (image, occultation profile, spectrum, etc.) within a rings-related data set. This is the common id by which data are identified within the Rings Node catalog. It describes the smallest quantity of data that can be usefully cataloged or analyzed by itself. Note that a single observation may be associated with multiple data products (e.g. raw and calibrated versions of an image). Note also that a single data product may be associated with multiple observations (e.g. a single WFPC2 image file containing four different images). A ring observation id is constructed using numbers, upper case letters, forward slash, colon, period, dash, and underscore as follows: p/type/host/inst/time/... where p is a single-letter planet id (one of J, S, U, or N); type is IMG for images, OCC for occultation profile, etc.; host is the instrument host id, inst is the instrument id; time is the observation time as a date or instrument clock count; further information identifying the observation can then be appended as appropriate. Optional in labels. Nillable, in which case the nil_reason should be 'inapplicable'. Examples: J/IMG/VG2/ISS/20693.01/N J/IMG/VG2/ISS/20693.02/W S/IMG/HST/WFPC2/1995-08-10/U2TF020B/PC1 U/OCC/VG2/RSS/1986-01-24/S U/OCC/VG2/RSS/1986-01-24/X N/OCC/VG2/PPS/1989-08-25/SIGMA_SGR *
    - value_data_type: **ASCII_Short_String_Collapsed**
    - minimum_characters: **1**
    - maximum_characters: **255**
    - nillable: **true**

- **ring_occultation_direction in Radio_Occultation**

  steward: **rings**
  namespace id: **rings**
  class: **Radio_Occultation**
  version: **1.1**

    - definition: *ring_occultation_direction indicates the radial direction of an occultation track. This refers to the observed occultation track overall, not to the subset that might appear in a particular file. Permitted values are 'Ingress', 'Egress', 'Both', and 'Multiple'. The value 'multiple' is only used for some Hubble-based occultations where the occultation track is not monotonic over relatively short time scales. Required in labels of ring occultation observations. Nillable if the observation is not a ring occultation in which case the nil_reason should be 'inapplicable'. Not intended as a value for a table field. *
    - value_data_type: **ASCII_Short_String_Collapsed** - Enumerated
    - minimum_characters: **1**
    - maximum_characters: **255**
    - nillable: **false**
    - permissible values
      Both - The ring radius along the a portion of the occultation track decreases with time, and along a different portion increases with time.
      Egress - The ring radius along the occultation track increases with time.
      Ingress - The ring radius along the occultation track decreases with time.
      Multiple - Only used for some Hubble-based occultations where the occultation track is not monotonic over relatively short time scales.

- **ring_occultation_direction in Radio_Occultation_Support**

  steward: **rings**
  namespace id: **rings**
  class: **Radio_Occultation_Support**
  version: **1.1**

    - definition: *ring_occultation_direction indicates the radial direction of an occultation track. This refers to the observed occultation track overall, not to the subset that might appear in a particular file. Permitted values are 'Ingress', 'Egress', 'Both', and 'Multiple'. The value 'multiple' is only used for some Hubble-based occultations where the occultation track is not monotonic over relatively short time scales. Required in labels of ring occultation observations. Nillable if the observation is not a ring occultation in which case the nil_reason should be 'inapplicable'. Not intended as a value for a table field. *
    - value_data_type: **ASCII_Short_String_Collapsed** - Enumerated
    - minimum_characters: **1**
    - maximum_characters: **255**
    - nillable: **false**

- permissible values
  Both - The ring radius along the a portion of the occultation track decreases with time, and along a different portion increases with time.
  Egress - The ring radius along the occultation track increases with time.
  Ingress - The ring radius along the occultation track decreases with time.
  Multiple - Only used for some Hubble-based occultations where the occultation track is not monotonic over relatively short time scales.

- **ring_occultation_direction in Stellar_Occultation**

  steward: **rings**
  namespace id: **rings**
  class: **Stellar_Occultation**
  version: **1.1**

  - definition: *ring_occultation_direction indicates the radial direction of an occultation track. This refers to the observed occultation track overall, not to the subset that might appear in a particular file. Permitted values are 'Ingress', 'Egress', 'Both', and 'Multiple'. The value 'multiple' is only used for some Hubble-based occultations where the occultation track is not monotonic over relatively short time scales. Required in labels of ring occultation observations. Nillable if the observation is not a ring occultation in which case the nil_reason should be 'inapplicable'. Not intended as a value for a table field. *
  - value_data_type: **ASCII_Short_String_Collapsed** - Enumerated
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**
  - permissible values
  Both - The ring radius along the a portion of the occultation track decreases with time, and along a different portion increases with time.
  Egress - The ring radius along the occultation track increases with time.
  Ingress - The ring radius along the occultation track decreases with time.
  Multiple - Only used for some Hubble-based occultations where the occultation track is not monotonic over relatively short time scales.

- **ring_profile_direction in Radio_Occultation**

  steward: **rings**
  namespace id: **rings**
  class: **Radio_Occultation**
  version: **1.1**

  - definition: *ring_profile_direction indicates the radial direction of a ring occultation within a particular data product. Possible values are 'Ingress', 'Egress', or 'Multiple'. The value 'Multiple' is only used for some Hubble-based occultations where the occultation track is not monotonic over relatively short time scales. Required in labels of ring occultation observations. Nillable if the observation is not a ring occultation in which case the nil_reason should be 'inapplicable'. Not intended as a value for a table field. *
  - value_data_type: **ASCII_Short_String_Collapsed** - Enumerated
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**
  - permissible values
  Egress - The ring radius along the occultation track increases with time.
  Ingress - The ring radius along the occultation track decreases with time.
  Multiple - Only used for some Hubble-based occultations where the occultation track is not monotonic over relatively short time scales.

- **ring_profile_direction in Radio_Occultation_Support**

  steward: **rings**
  namespace id: **rings**
  class: **Radio_Occultation_Support**
  version: **1.1**

  - definition: *ring_profile_direction indicates the radial direction of a ring occultation within a particular data product. Possible values are 'Ingress', 'Egress', or 'Multiple'. The value 'Multiple' is only used for some Hubble-based occultations where the occultation track is not monotonic over relatively short time scales. Required in labels of ring occultation observations. Nillable if the observation is not a ring occultation in which case the nil_reason should be 'inapplicable'. Not intended as a value for a table field. *
  - value_data_type: **ASCII_Short_String_Collapsed** - Enumerated
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**
  - permissible values
  Egress - The ring radius along the occultation track increases with time.
  Ingress - The ring radius along the occultation track decreases with time.
  Multiple - Only used for some Hubble-based occultations where the occultation track is not monotonic over relatively short time scales.

- **ring_profile_direction in Stellar_Occultation**

  steward: **rings**
  namespace id: **rings**
  class: **Stellar_Occultation**
  version: **1.1**

  - definition: *ring_profile_direction indicates the radial direction of a ring occultation within a particular data product. Possible values are 'Ingress', 'Egress', or 'Multiple'. The value 'Multiple' is only used for some Hubble-based occultations where the occultation track is not monotonic over relatively short time scales. Required in labels of ring occultation observations. Nillable if the observation is not a ring occultation in which case the nil_reason should be 'inapplicable'. Not intended as a value for a table field. *
  - value_data_type: **ASCII_Short_String_Collapsed** - Enumerated
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**
  - permissible values
    Egress - The ring radius along the occultation track increases with time.
    Ingress - The ring radius along the occultation track decreases with time.
    Multiple - Only used for some Hubble-based occultations where the occultation track is not monotonic over relatively short time scales.

- **rotation_direction in Target_PDS3**

  steward: **ops**
  namespace id: **pds**
  class: **Target_PDS3**
  version: **1.1**

  - definition: **The rotation_direction element provides the direction of rotation as viewed from the north pole of the 'invariable plane of the solar system', which is the plane passing through the center of mass of the solar system and perpendicular to the angular momentum vector of the solar system. The value for this element is PROGRADE for counter -clockwise rotation, RETROGRADE for clockwise rotation and SYNCHRONOUS for satellites which are tidally locked with the primary. Sidereal_rotation_period and rotation_direction_type are unknown for a number of satellites, and are not applicable (N/A) for satellites which are tumbling.**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **sample_display_direction in Display_2D_Image**

  steward: **pds**
  namespace id: **pds**
  class: **Display_2D_Image**
  version: **1.1**

  - definition: **The sample_display_direction attribute provides the preferred orientation of samples within a line for viewing on a display device. The attribute sample_display_direction must be used with line_display_direction.**
  - value_data_type: **ASCII_Short_String_Collapsed** - Enumerated
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**
  - permissible value
    Right - The preferred orientation of samples within an line for viewing on a display device is Right

- **sampling_parameter_interval in Uniformly_Sampled**

  steward: **pds**
  namespace id: **pds**
  class: **Uniformly_Sampled**
  version: **1.1**

  - definition: **The sampling_parameter_interval element identifies the spacing of points at which data are sampled and at which a value for an instrument or dataset parameter is available. This sampling interval can be either the original (raw) sampling or the result of some resampling process. For example, in 48-second magnetometer data the sampling interval is 48. The sampling parameter (time, in the example) is identified by the sampling_parameter_name element.**
  - value_data_type: **ASCII_Real**
  - nillable: **false**

- **sampling_parameter_interval in Radio_Occultation_Support**

  steward: **rings**

namespace id: **rings**
class: **Radio_Occultation_Support**
version: **1.1**

- definition: *sampling_parameter_interval specifies the spacing of points at which data are sampled and at which a value for an instrument or dataset parameter is available. Used in labels for radio occultation supplemental files. Nillable in which case the nil_reason should be 'inapplicable'. *
- value_data_type: **ASCII_Real**
- nillable: **true**

- **sampling_parameter_name in Uniformly_Sampled**

  steward: **pds**
  namespace id: **pds**
  class: **Uniformly_Sampled**
  version: **1.1**

  - definition: **The sampling_parameter_name element provides the name of the parameter which determines the sampling interval of a particular instrument or dataset parameter. For example, magnetic field intensity is sampled in time increments, and a spectrum is sampled in wavelength or frequency.**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **sampling_parameter_name in Radio_Occultation_Support**

  steward: **rings**
  namespace id: **rings**
  class: **Radio_Occultation_Support**
  version: **1.1**

  - definition: *sampling_parameter_name provides the name of the parameter which determines the sampling interval for uniformly sampled data. Used in labels for radio occultation supplemental files. Nillable in which case the nil_reason should be 'inapplicable'. *
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **true**

- **sampling_parameter_scale in Uniformly_Sampled**

  steward: **pds**
  namespace id: **pds**
  class: **Uniformly_Sampled**
  version: **1.1**

  - definition: **The sampling_parameter_scale element specifies whether the sampling interval is linear or something other such as logarithmic.**
  - value_data_type: **ASCII_Short_String_Collapsed** - Enumerated
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**
  - permissible values
    Exponential - Values of Uniformly_Sampled are given at uniform spacings of the exponential of an independent variable [e.g., log(1), log(2), log(3), log(4), ...]
    Linear - Values of Uniformly_Sampled are given at uniform (linear) spacings of an independent variable [e.g., 1, 2, 3, 4, ...]
    Logarithmic - Values of Uniformly_Sampled are given at uniform spacings of the logarithm of an independent variable [e.g., 1, 10, 100, 1000, ...]

- **sampling_parameter_unit in Uniformly_Sampled**

  steward: **pds**
  namespace id: **pds**
  class: **Uniformly_Sampled**
  version: **1.1**

  - definition: **The sampling_parameter_unit element specifies the unit of measure of associated data sampling parameters.**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **sampling_parameter_unit in Radio_Occultation_Support**

steward: **rings**
namespace id: **rings**
class: **Radio_Occultation_Support**
version: **1.1**

- definition: *sampling_parameter_unit provides the units of the parameter which determines the sampling interval for uniformly sampled data. Used in labels for radio occultation supplemental files. Nillable in which case the nil_reason should be 'inapplicable'. *
- value_data_type: **ASCII_Short_String_Collapsed**
- minimum_characters: **1**
- maximum_characters: **255**
- nillable: **true**

- **saturated_constant in Special_Constants**

  steward: **pds**
  namespace id: **pds**
  class: **Special_Constants**
  version: **1.1**

  - definition: **The saturated_constant attribute provides a value that indicates the original value was invalid because of sensor saturation.**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **scaling_factor in Band_Bin**

  steward: **img**
  namespace id: **pds**
  class: **Band_Bin**
  version: **1.1**

  - definition: **The scaling_factor attribute is the scaling factor to be applied to each stored value in order to recover an original value. The observed value (Ov) is calculated from the stored value (Sv) thus: Ov = (Sv * scaling_factor) + value_offset. The default value is 1.**
  - value_data_type: **ASCII_Real**
  - nillable: **false**

- **scaling_factor in Element_Array**

  steward: **pds**
  namespace id: **pds**
  class: **Element_Array**
  version: **1.1**

  - definition: **The scaling_factor attribute is the scaling factor to be applied to each stored value in order to recover an original value. The observed value (Ov) is calculated from the stored value (Sv) thus: Ov = (Sv * scaling_factor) + value_offset. The default value is 1.**
  - value_data_type: **ASCII_Real**
  - nillable: **false**

- **scaling_factor in Field_Binary**

  steward: **pds**
  namespace id: **pds**
  class: **Field_Binary**
  version: **1.1**

  - definition: **The scaling_factor attribute is the scaling factor to be applied to each stored value in order to recover an original value. The observed value (Ov) is calculated from the stored value (Sv) thus: Ov = (Sv * scaling_factor) + value_offset. The default value is 1.**
  - value_data_type: **ASCII_Real**
  - nillable: **false**

- **scaling_factor in Field_Bit**

  steward: **pds**
  namespace id: **pds**
  class: **Field_Bit**
  version: **1.1**

  - definition: **The scaling_factor attribute is the scaling factor to be applied to each stored value in order to recover an original value. The observed value (Ov) is calculated from the stored value (Sv) thus: Ov = (Sv ***

scaling_factor) + value_offset. The default value is 1.
- value_data_type: **ASCII_Real**
- nillable: **false**

- **scaling_factor in Field_Character**

  steward: **pds**
  namespace id: **pds**
  class: **Field_Character**
  version: **1.1**

  - definition: **The scaling_factor attribute is the scaling factor to be applied to each stored value in order to recover an original value. The observed value (Ov) is calculated from the stored value (Sv) thus: Ov = (Sv * scaling_factor) + value_offset. The default value is 1.**
  - value_data_type: **ASCII_Real**
  - nillable: **false**

- **scaling_factor in Field_Delimited**

  steward: **pds**
  namespace id: **pds**
  class: **Field_Delimited**
  version: **1.1**

  - definition: **The scaling_factor attribute is the scaling factor to be applied to each stored value in order to recover an original value. The observed value (Ov) is calculated from the stored value (Sv) thus: Ov = (Sv * scaling_factor) + value_offset. The default value is 1.**
  - value_data_type: **ASCII_Real**
  - nillable: **false**

- **sequence_number in Axis_Array**

  steward: **pds**
  namespace id: **pds**
  class: **Axis_Array**
  version: **1.1**

  - definition: **The sequence_number attribute provides a number that is used to order axes in an array.**
  - value_data_type: **ASCII_Integer**
  - minimum_value: **1**
  - maximum_value: **16**
  - nillable: **false**
  - schematron rule: **The sequence number of the first axis of an Array_2D_Image must be set to 1.**
  - schematron rule: **The sequence number of the second axis of an Array_2D_Image must be set to 2.**

- **sequence_number in Quaternion_Component**

  steward: **pds**
  namespace id: **pds**
  class: **Quaternion_Component**
  version: **1.1**

  - definition: **The sequence_number attribute provides a number that is used to order axes in an array.**
  - value_data_type: **ASCII_Integer**
  - minimum_value: **1**
  - maximum_value: **16**
  - nillable: **false**

- **sequence_number in Vector_Component**

  steward: **pds**
  namespace id: **pds**
  class: **Vector_Component**
  version: **1.1**

  - definition: **The sequence_number attribute provides a number that is used to order axes in an array.**
  - value_data_type: **ASCII_Integer**
  - minimum_value: **1**
  - maximum_value: **16**
  - nillable: **false**

- **serial_number in Instrument**

  steward: **pds**
  namespace id: **pds**

class: **Instrument**
version: **1.1**

- definition: **The serial number element provides the assigned manufacturer's serial number.**
- value_data_type: **ASCII_Short_String_Collapsed**
- minimum_characters: **1**
- maximum_characters: **255**
- nillable: **false**

- **serial_number in Instrument_Host**

  steward: **pds**
  namespace id: **pds**
  class: **Instrument_Host**
  version: **1.1**

  - definition: **The serial number attribute provides the manufacturer's serial number assigned to an instrument host.**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **software_dialect in Software_Source**

  steward: **ops**
  namespace id: **pds**
  class: **Software_Source**
  version: **1.1**

  - definition: **The software dialect attribute indicates the variety of a language used to write the software.**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **software_format_type in Software_Binary**

  steward: **ops**
  namespace id: **pds**
  class: **Software_Binary**
  version: **1.1**

  - definition: **The software format type attribute classifies the format of the software.**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **software_format_type in Software_Source**

  steward: **ops**
  namespace id: **pds**
  class: **Software_Source**
  version: **1.1**

  - definition: **The software format type attribute classifies the format of the software.**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **software_id in Software**

  steward: **ops**
  namespace id: **pds**
  class: **Software**
  version: **1.1**

  - definition: **The software id attribute provides a formal name used to refer to the software.**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **software_language in Software_Source**

  steward: **ops**
  namespace id: **pds**
  class: **Software_Source**
  version: **1.1**

  - definition: **The software language attribute identifies the language used to write the software.**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **software_type in Software**

  steward: **ops**
  namespace id: **pds**
  class: **Software**
  version: **1.1**

  - definition: **The software type attribute identifies the class of which the software is a member.**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **solar_longitude in Time_Coordinates**

  steward: **pds**
  namespace id: **pds**
  class: **Time_Coordinates**
  version: **1.1**

  - definition: **The solar_longitude attribute provides the angle between the body-Sun line at the time of interest and the body-Sun line at its vernal equinox.**
  - value_data_type: **ASCII_Real**
  - minimum_value: **0**
  - maximum_value: **360**
  - unit_of_measure_type: **Units_of_Angle**
  - valid units: **arcmin, arcsec, deg, hr, mrad, rad**
  - specified_unit_id: **deg**
  - nillable: **false**

- **sort_name in PDS_Affiliate**

  steward: **ops**
  namespace id: **pds**
  class: **PDS_Affiliate**
  version: **1.1**

  - definition: **The sort name attribute provides a string to be used in ordering. For people, the last name (surname) is typically first, followed by a comma and then other names.**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **sort_name in PDS_Guest**

  steward: **ops**
  namespace id: **pds**
  class: **PDS_Guest**
  version: **1.1**

  - definition: **The sort name attribute provides a string to be used in ordering. For people, the last name (surname) is typically first, followed by a comma and then other names.**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **source_pds3_id in Radio_Occultation**

  steward: **rings**
  namespace id: **rings**

class: **Radio_Occultation**
version: **1.1**

- definition: *source_pds3_id is the PDS3 product identifier for the source product. If the source product has been archived under PDS4, use the Internal_Reference class in the Investigation_Area. source_pds3_id is required in occultation labels and may be used multiple times. The acceptable nil_reasons are 'inapplicable' and 'unknown'. *
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **true**

- **source_pds3_id in Rings_Supplement**

  steward: **rings**
  namespace id: **rings**
  class: **Rings_Supplement**
  version: **1.1**

  - definition: *source_pds3_id is the PDS3 product identifier for the source product. If the source product has been archived under PDS4, use the Internal_Reference class in the Investigation_Area. source_pds3_id is required in occultation labels and may be used multiple times. The acceptable nil_reasons are 'inapplicable' and 'unknown'. *
    - value_data_type: **ASCII_Short_String_Collapsed**
    - minimum_characters: **1**
    - maximum_characters: **255**
    - nillable: **true**

- **source_pds3_id in Stellar_Occultation**

  steward: **rings**
  namespace id: **rings**
  class: **Stellar_Occultation**
  version: **1.1**

  - definition: *source_pds3_id is the PDS3 product identifier for the source product. If the source product has been archived under PDS4, use the Internal_Reference class in the Investigation_Area. source_pds3_id is required in occultation labels and may be used multiple times. The acceptable nil_reasons are 'inapplicable' and 'unknown'. *
    - value_data_type: **ASCII_Short_String_Collapsed**
    - minimum_characters: **1**
    - maximum_characters: **255**
    - nillable: **true**

- **spacecraft_event_start_time_utc in Radio_Occultation**

  steward: **rings**
  namespace id: **rings**
  class: **Radio_Occultation**
  version: **1.1**

  - definition: *spacecraft_event_start_time_utc gives the UTC time corresponding to the earliest time given by spacecraft_event_time in the data table. However, while spacecraft_event_time is given as seconds offset from a reference time, spacecraft_event_start_time_utc is given as a UTC date time. spacecraft_event_start_time_utc is required in the label for radio occultation data, but is not used for stellar occultation data. Required in the label for radio occultation data. Not used for stellar occultations. Nillable if the observation is not an occultation in which case the nil_reason should be 'inapplicable'. *
    - value_data_type: **ASCII_Date_Time_UTC**
    - format: **YYYY-MM-DDTHH:MM:SS.SSSZ/YYYY-DOYTHH:MM:SS.SSSZ**
    - nillable: **true**

- **spacecraft_event_stop_time_utc in Radio_Occultation**

  steward: **rings**
  namespace id: **rings**
  class: **Radio_Occultation**
  version: **1.1**

  - definition: *spacecraft_event_stop_time_utc gives the UTC time corresponding to the latest time given by spacecraft_event_time in the data table. However, while spacecraft_event_time is given as seconds offset from a reference time, spacecraft_event_stop_time_utc is given as a UTC date time. spacecraft_event_stop_time_utc is required in the label for radio occultation data, but is not used for stellar occultation data. Required in the label for radio occultation data. Not used for stellar occultations.Nillable if the observation is not an occultation in which case the nil_reason should be 'inapplicable'. *
    - value_data_type: **ASCII_Date_Time_UTC**
    - format: **YYYY-MM-DDTHH:MM:SS.SSSZ/YYYY-DOYTHH:MM:SS.SSSZ**
    - nillable: **true**

- **specified_unit_id in DD_Value_Domain**

steward: **ops**
namespace id: **pds**
class: **DD_Value_Domain**
version: **1.1**

- definition: **The specified_unit_id attribute provides the units chosen for maximum_value, minimum_value, and permissible_value.**
- value_data_type: **ASCII_Short_String_Collapsed**
- minimum_characters: **1**
- maximum_characters: **255**
- nillable: **false**

- **specified_unit_id in DD_Value_Domain_Full**

  steward: **ops**
  namespace id: **pds**
  class: **DD_Value_Domain_Full**
  version: **1.1**

  - definition: **The specified_unit_id attribute provides the units chosen for maximum_value, minimum_value, and permissible_value.**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **spice_file_name in Telemetry_Parameters**

  steward: **img**
  namespace id: **img**
  class: **Telemetry_Parameters**
  version: **1.1**

  - definition: **The spice_file_name attribute provides the names of the SPICE files used in processing the data.**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **spice_filename in Radio_Occultation_Support**

  steward: **rings**
  namespace id: **rings**
  class: **Radio_Occultation_Support**
  version: **1.1**

  - definition: *spice_filename gives the file name(s) of SPICE files used in the analysis. Only used if the SPICE files can not be identified using a LID or LIDVID. Otherwise the association is made in the Reference_Class using the Internal_Reference class. Optional in labels for radio occultation. Nillable in which case the nil_reason should be 'inapplicable'. *
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **standard_deviation in Band_Bin**

  steward: **img**
  namespace id: **pds**
  class: **Band_Bin**
  version: **1.1**

  - definition: **The standard_deviation attribute provides the standard deviation of values in the associated object; empty and Special_Constants values are excluded.**
  - value_data_type: **ASCII_Real**
  - nillable: **false**

- **standard_deviation in Field_Statistics**

  steward: **pds**
  namespace id: **pds**
  class: **Field_Statistics**
  version: **1.1**

  - definition: **The standard_deviation attribute provides the standard deviation of the stored field over all records (empty fields and Special_Constants values are excluded from the computation).**

- value_data_type: **ASCII_Real**
- minimum_value: **0**
- nillable: **false**

- **standard_deviation in Object_Statistics**

  steward: **pds**
  namespace id: **pds**
  class: **Object_Statistics**
  version: **1.1**

  - definition: **The standard_deviation attribute provides the standard deviation of the stored array element values after application of any bit mask (Special_Constants values are excluded from the computation).**
  - value_data_type: **ASCII_Real**
  - minimum_value: **0**
  - nillable: **false**

- **star_name in Stellar_Occultation**

  steward: **rings**
  namespace id: **rings**
  class: **Stellar_Occultation**
  version: **1.1**

  - definition: *star_name provides the identifying name of star, including the catalog name if necessary. Examples include 'sigma Sgr' and 'SAO 123456' (for star number 123456 in the Smithsonian Astrophysical Observatory catalog). Use 'Sun' for solar occultations. Required in labels for stellar and solar occultations. Nillable if the observation is not a ring occultation in which case the nil_reason should be 'inapplicable'. Not used for radio occultations. *
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **start_bit in Field_Bit**

  steward: **pds**
  namespace id: **pds**
  class: **Field_Bit**
  version: **1.1**

  - definition: **The start_bit attribute provides the position of the first bit within an ordered sequence of bits.**
  - value_data_type: **ASCII_Integer**
  - minimum_value: **1**
  - nillable: **false**

- **start_date in Investigation**

  steward: **pds**
  namespace id: **pds**
  class: **Investigation**
  version: **1.1**

  - definition: **The start_date attribute provides the date when an activity began.**
  - value_data_type: **ASCII_Date_YMD**
  - format: **YYYY-MM-DD**
  - nillable: **false**

- **start_date_time in Data_Set_PDS3**

  steward: **ops**
  namespace id: **pds**
  class: **Data_Set_PDS3**
  version: **1.1**

  - definition: **The start_date_time attribute provides the date and time at the beginning of the data set.**
  - value_data_type: **ASCII_Date_Time**
  - format: **YYYY-MM-DDTHH:MM:SS.SSS(Z)/YYYY-DOYTHH:MM:SS.SSS(Z)**
  - nillable: **true**

- **start_date_time in Time_Coordinates**

  steward: **pds**
  namespace id: **pds**
  class: **Time_Coordinates**

version: **1.1**

- definition: **The start_date_time attribute provides the date and time appropriate to the beginning of the product being labeled.**
- value_data_type: **ASCII_Date_Time_UTC**
- format: **YYYY-MM-DDTHH:MM:SS.SSSZ/YYYY-DOYTHH:MM:SS.SSSZ**
- nillable: **true**

- **starting_point_identifier in Document_Format**

steward: **pds**
namespace id: **pds**
class: **Document_Format**
version: **1.1**

- definition: **The starting_point attribute provides the local_identifier of the object to be accessed first.**
- value_data_type: **ASCII_Short_String_Collapsed**
- minimum_characters: **1**
- maximum_characters: **255**
- nillable: **false**

- **steward_id in DD_Attribute_Full**

steward: **ops**
namespace id: **pds**
class: **DD_Attribute_Full**
version: **1.1**

- definition: **The steward attribute indicates the person or organization who manages a set of registered attributes and classes.**
- value_data_type: **ASCII_Short_String_Collapsed** - Enumerated
- minimum_characters: **1**
- maximum_characters: **255**
- nillable: **false**
- permissible values
  atm - Steward of the attribute is the PDS Atmospheres Discipline Node
  geo - Steward of the attribute is the PDS Geosciences Discipline Node
  img - Steward of the attribute is the PDS Imaging support node
  naif - Steward of the attribute is the PDS Navigation and Ancillary Information support node
  ops - Steward of the attribute is the PDS operations function
  pds - Steward of the attribute is the Planetary Data System
  ppi - Steward of the attribute is the PDS Planetary Plasma Interaction Discipline Node
  rings - Steward of the attribute is the PDS Rings Discipline Node
  rs - Steward of the attribute is the PDS radio science function
  sbn - Steward of the attribute is the PDS Small Bodies Discipline Node

- **steward_id in DD_Class_Full**

steward: **ops**
namespace id: **pds**
class: **DD_Class_Full**
version: **1.1**

- definition: **The steward_id attribute provides the abbreviation of the organization that manages the set of registered attributes and classes.**
- value_data_type: **ASCII_Short_String_Collapsed** - Enumerated
- minimum_characters: **1**
- maximum_characters: **255**
- nillable: **false**
- permissible values
  atm - Steward of the attribute is the PDS Atmospheres Discipline Node
  geo - Steward of the attribute is the PDS Geosciences Discipline Node
  img - Steward of the attribute is the PDS Imaging support node
  naif - Steward of the attribute is the PDS Navigation and Ancillary Information support node
  ops - Steward of the attribute is the PDS operations function
  pds - Steward of the attribute is the Planetary Data System
  ppi - Steward of the attribute is the PDS Planetary Plasma Interaction Discipline Node
  rings - Steward of the attribute is the PDS Rings Discipline Node
  rs - Steward of the attribute is the PDS radio science function
  sbn - Steward of the attribute is the PDS Small Bodies Discipline Node

- **steward_id in Ingest_LDD**

steward: **ops**
namespace id: **pds**
class: **Ingest_LDD**

version: **1.1**

- definition: **The steward_id attribute provides the abbreviation of the organization that manages the set of registered attributes and classes.**
- value_data_type: **ASCII_Short_String_Collapsed**
- minimum_characters: **1**
- maximum_characters: **255**
- nillable: **false**

- **stop_bit in Field_Bit**

  steward: **pds**
  namespace id: **pds**
  class: **Field_Bit**
  version: **1.1**

  - definition: **The stop-bit attribute provides the location of the last bit in this bit field relative to the first bit in the packed_data field. Bits are numbered continuously across byte boundaries. The first bit location in the packed data field is "1".**
  - value_data_type: **ASCII_Integer**
  - minimum_value: **1**
  - nillable: **false**

- **stop_date in Investigation**

  steward: **pds**
  namespace id: **pds**
  class: **Investigation**
  version: **1.1**

  - definition: **The stop_date attribute provides the date when an activity ended.**
  - value_data_type: **ASCII_Date_YMD**
  - format: **YYYY-MM-DD**
  - nillable: **true**

- **stop_date_time in Data_Set_PDS3**

  steward: **ops**
  namespace id: **pds**
  class: **Data_Set_PDS3**
  version: **1.1**

  - definition: **The stop_date_time attribute provides the date and time at the end of the data set.**
  - value_data_type: **ASCII_Date_Time**
  - format: **YYYY-MM-DDTHH:MM:SS.SSS(Z)/YYYY-DOYTHH:MM:SS.SSS(Z)**
  - nillable: **true**

- **stop_date_time in Time_Coordinates**

  steward: **pds**
  namespace id: **pds**
  class: **Time_Coordinates**
  version: **1.1**

  - definition: **The stop_date_time attribute provides the date and time appropriate to the end of the product being labeled.**
  - value_data_type: **ASCII_Date_Time_UTC**
  - format: **YYYY-MM-DDTHH:MM:SS.SSSZ/YYYY-DOYTHH:MM:SS.SSSZ**
  - nillable: **true**

- **sub_stellar_clock_angle in Stellar_Occultation**

  steward: **rings**
  namespace id: **rings**
  class: **Stellar_Occultation**
  version: **1.1**

  - definition: *sub_stellar_clock_angle is an angle measured at a point in the ring plane, from the direction toward a star to the local radial direction. This angle is projected into the ring plane and measured in the clockwise (retrograde) direction. Equivalently, this is the prograde angle from the local radial direction to the direction toward the star. For stellar occultation data, this angle is equal to (180 - OBSERVED_RING_AZIMUTH) mod 360. It is available only for backward compatibility with previously published Cassini VIMS occultation data analysis; observed_ring_azimuth is the preferred quantity for archiving. sub_stellar_clock_angle is an optional data table field for Cassini VIMS occultation data; not recommended for other occultation data. In a label, the min and max variation attributes are optional for Cassini VIMS occultation data; not recommended for other occultation data. *
  - value_data_type: **ASCII_Real**

- minimum_value: **0**
- maximum_value: **360**
- unit_of_measure_type: **Units_of_Angle**
- valid units: **arcmin, arcsec, deg, hr, mrad, rad**
- nillable: **false**

- **sub_stellar_ring_azimuth in Stellar_Occultation**

  steward: **rings**
  namespace id: **rings**
  class: **Stellar_Occultation**
  version: **1.1**

  - definition: *sub_stellar_ring_azimuth is an angle measured at a point in the ring plane, starting from the direction of a photon arriving from a star, and ending at the direction of a local radial vector. This angle is projected into the ring plane and measured in the prograde direction. Values range from 0 to 360 in units of degrees. For stellar occultation data, this angle is equal to (observed_ring_azimuth %2B 180) mod 360. It is available only for backward compatibility with previously published Cassini UVIS occultation data analysis; observed_ring_azimuth is the preferred quantity for archiving. sub_stellar_ring_azimuth is an optional data table field for Cassini UVIS occultation data; not recommended for other occultation data. In a label, the min and max variation attributes are optional for Cassini UVIS occultation data; not recommended for other occultation data. *
  - value_data_type: **ASCII_Real**
  - minimum_value: **0**
  - maximum_value: **360**
  - unit_of_measure_type: **Units_of_Angle**
  - valid units: **arcmin, arcsec, deg, hr, mrad, rad**
  - nillable: **false**

- **subfacet1 in Group_Facet1**

  steward: **pds**
  namespace id: **pds**
  class: **Group_Facet1**
  version: **1.1**

  - definition: **The subfacet1 attribute provides a sub-categorization under the facet1 value. The allowed values are restricted according to the value of facet1.**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **subfacet2 in Group_Facet2**

  steward: **pds**
  namespace id: **pds**
  class: **Group_Facet2**
  version: **1.1**

  - definition: **The subfacet2 attribute provides a sub-categorization under the facet2 value. The allowed values are restricted according to the value of facet2.**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **submitter_name in DD_Attribute**

  steward: **ops**
  namespace id: **pds**
  class: **DD_Attribute**
  version: **1.1**

  - definition: **The submitter_name attribute provides the name of the author, who submits the item to the steward.**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **submitter_name in DD_Attribute_Full**

  steward: **ops**
  namespace id: **pds**
  class: **DD_Attribute_Full**
  version: **1.1**

- definition: **The submitter_name attribute provides the name of the author, who submits the item to the steward.**
- value_data_type: **ASCII_Short_String_Collapsed**
- minimum_characters: **1**
- maximum_characters: **255**
- nillable: **false**

- **submitter_name in DD_Class**

  steward: **ops**
  namespace id: **pds**
  class: **DD_Class**
  version: **1.1**

  - definition: **The submitter_name attribute provides the name of the author, who submits the item to the steward.**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **submitter_name in DD_Class_Full**

  steward: **ops**
  namespace id: **pds**
  class: **DD_Class_Full**
  version: **1.1**

  - definition: **The submitter_name attribute provides the name of the author, who submits the item to the steward.**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **subscription_id in Subscriber_PDS3**

  steward: **ops**
  namespace id: **pds**
  class: **Subscriber_PDS3**
  version: **1.1**

  - definition: **The subscriber_id provides the identification of a PDS subscription.**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **supported_architecture_note in Software_Binary**

  steward: **ops**
  namespace id: **pds**
  class: **Software_Binary**
  version: **1.1**

  - definition: **The supported architecture note attribute identifies the hardware architecture that can process the software.**
  - value_data_type: **ASCII_Text_Preserved**
  - minimum_characters: **1**
  - nillable: **false**

- **supported_architecture_note in Software_Source**

  steward: **ops**
  namespace id: **pds**
  class: **Software_Source**
  version: **1.1**

  - definition: **The supported architecture note attribute identifies the hardware architecture that can process the software.**
  - value_data_type: **ASCII_Text_Preserved**
  - minimum_characters: **1**
  - nillable: **false**

- **supported_environment_note in Software_Script**

steward: **ops**
namespace id: **pds**
class: **Software_Script**
version: **1.1**

- definition: **The supported environment note attribute identifies the environment that can process the software.**
- value_data_type: **ASCII_Text_Preserved**
- minimum_characters: **1**
- nillable: **false**

- **supported_operating_system_note in Software_Binary**

  steward: **ops**
  namespace id: **pds**
  class: **Software_Binary**
  version: **1.1**

  - definition: **The supported operating system note attribute identifies the Operating System that supports the software.**
  - value_data_type: **ASCII_Text_Preserved**
  - minimum_characters: **1**
  - nillable: **false**

- **supported_operating_system_note in Software_Source**

  steward: **ops**
  namespace id: **pds**
  class: **Software_Source**
  version: **1.1**

  - definition: **The supported operating system note attribute identifies the Operating System that supports the software.**
  - value_data_type: **ASCII_Text_Preserved**
  - minimum_characters: **1**
  - nillable: **false**

- **system_requirements_note in Software_Binary**

  steward: **ops**
  namespace id: **pds**
  class: **Software_Binary**
  version: **1.1**

  - definition: **The system requirements note attribute identifies what is necessary to process the software.**
  - value_data_type: **ASCII_Text_Preserved**
  - minimum_characters: **1**
  - nillable: **false**

- **system_requirements_note in Software_Script**

  steward: **ops**
  namespace id: **pds**
  class: **Software_Script**
  version: **1.1**

  - definition: **The system requirements note attribute identifies what is necessary to process the software.**
  - value_data_type: **ASCII_Text_Preserved**
  - minimum_characters: **1**
  - nillable: **false**

- **system_requirements_note in Software_Source**

  steward: **ops**
  namespace id: **pds**
  class: **Software_Source**
  version: **1.1**

  - definition: **The system requirements note attribute identifies what is necessary to process the software.**
  - value_data_type: **ASCII_Text_Preserved**
  - minimum_characters: **1**
  - nillable: **false**

- **target_desc in Target_PDS3**

steward: **ops**
namespace id: **pds**
class: **Target_PDS3**
version: **1.1**

- definition: **The target_desc attribute describes the characteristics of a particular target.**
- value_data_type: **ASCII_Text_Preserved**
- minimum_characters: **1**
- nillable: **false**

- **target_name in Target_PDS3**

  steward: **ops**
  namespace id: **pds**
  class: **Target_PDS3**
  version: **1.1**

  - definition: **The target_name attribute provides a name by which the target is formally known.**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **target_type in Target_PDS3**

  steward: **ops**
  namespace id: **pds**
  class: **Target_PDS3**
  version: **1.1**

  - definition: **The target_type attribute identifies the type of a named target.**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **team_name in PDS_Affiliate**

  steward: **ops**
  namespace id: **pds**
  class: **PDS_Affiliate**
  version: **1.1**

  - definition: **The team_name attribute provides the name of a group of individuals.**
  - value_data_type: **ASCII_Short_String_Collapsed** - Enumerated
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**
  - permissible values
    Engineering - Team name is Engineering
    Geosciences - Team name is Geosciences
    Headquarters - Team name is Headquarters
    Imaging - Team name is Imaging
    Management - Team name is Management
    National Space Science Data Center - Team name is National Space Science Data Center
    Navigation Ancillary Information Facility - Team name is Navigation Ancillary Information Facility
    Planetary Atmospheres - Team name is Planetary Atmospheres
    Planetary Plasma Interactions - Team name is Planetary Plasma Interactions
    Planetary Rings - Team name is Planetary Rings
    Radio Science - Team name is Radio Science
    Small Bodies - Team name is Radio Science

- **telemetry_format_id in Telemetry_Parameters**

  steward: **img**
  namespace id: **img**
  class: **Telemetry_Parameters**
  version: **1.1**

  - definition: **The telemetry_format_id attribute supplies a telemetry format code.**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **4**
  - nillable: **false**

- **telemetry_provider_id in Telemetry_Parameters**

steward: **img**
namespace id: **img**
class: **Telemetry_Parameters**
version: **1.1**

- definition: **The telemetry_provider_id attribute identifies the provider and or version of the telemetry data used in the generation of this data.**
- value_data_type: **ASCII_Short_String_Collapsed**
- minimum_characters: **1**
- maximum_characters: **20**
- nillable: **false**

- **telemetry_source_name in Telemetry_Parameters**

steward: **img**
namespace id: **img**
class: **Telemetry_Parameters**
version: **1.1**

- definition: **The telemetry_source_name attribute identifies the telemetry source used in creation of a data set.**
- value_data_type: **ASCII_Short_String_Collapsed**
- minimum_characters: **1**
- maximum_characters: **60**
- nillable: **false**

- **telemetry_source_type in Telemetry_Parameters**

steward: **img**
namespace id: **img**
class: **Telemetry_Parameters**
version: **1.1**

- definition: **The telemetry_source_type attribute classifies the source of the telemetry used in creation of this data collection.**
- value_data_type: **ASCII_Short_String_Collapsed** - Enumerated
- minimum_characters: **1**
- maximum_characters: **255**
- valid units: **none**
- nillable: **false**
- permissible values
  DATA_PRODUCT - The telemetry source is a data product.
  SFDU - The telemetry source is an SFDU

- **telephone_number in PDS_Affiliate**

steward: **ops**
namespace id: **pds**
class: **PDS_Affiliate**
version: **1.1**

- definition: **The telephone_number attribute provides a telephone number in international notation in compliance with the E.164 telephone number format recommendation.**
- value_data_type: **ASCII_Short_String_Collapsed**
- minimum_characters: **1**
- maximum_characters: **255**
- nillable: **false**

- **telescope_latitude in Telescope**

steward: **pds**
namespace id: **pds**
class: **Telescope**
version: **1.1**

- definition: **The latitude attribute provides the angular distance north or south from the equator of a point on the object's surface, measured on the meridian of the point.**
- value_data_type: **ASCII_Real**
- minimum_value: **-90**
- maximum_value: **90**
- unit_of_measure_type: **Units_of_Angle**
- valid units: **arcmin, arcsec, deg, hr, mrad, rad**
- specified_unit_id: **deg**
- nillable: **false**

- **telescope_longitude in Telescope**

  steward: **pds**
  namespace id: **pds**
  class: **Telescope**
  version: **1.1**

  - definition: **The longitude attribute provides the angular distance east or west on the object's surface, measured by the angle contained between the meridian of a particular place and some prime meridian.**
  - value_data_type: **ASCII_Real**
  - unit_of_measure_type: **Units_of_Angle**
  - valid units: **arcmin, arcsec, deg, hr, mrad, rad**
  - specified_unit_id: **deg**
  - nillable: **false**

- **title in Identification_Area**

  steward: **pds**
  namespace id: **pds**
  class: **Identification_Area**
  version: **1.1**

  - definition: **The name given to the resource. Typically, a Title will be a name by which the resource is formally known. - Dublin Core - The title is used to refer to an object in a version independent manner.**
  - value_data_type: **UTF8_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **transfer_manifest_checksum in Information_Package_Component**

  steward: **ops**
  namespace id: **pds**
  class: **Information_Package_Component**
  version: **1.1**

  - definition: **The transfer manifest checksum provides the checksum for the transfer manifest file.**
  - value_data_type: **ASCII_MD5_Checksum**
  - minimum_characters: **32**
  - maximum_characters: **32**
  - format: **0123456789abcdef**
  - nillable: **false**

- **type in DD_Attribute_Full**

  steward: **ops**
  namespace id: **pds**
  class: **DD_Attribute_Full**
  version: **1.1**

  - definition: **The type attribute provides a classification for the resource.**
  - value_data_type: **ASCII_Short_String_Collapsed** - Enumerated
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**
  - permissible values
    PDS3 - The attribute definition is classified as being of type PDS3
    PDS4 - The attribute definition is classified as being of type PDS4

- **type in DD_Class_Full**

  steward: **ops**
  namespace id: **pds**
  class: **DD_Class_Full**
  version: **1.1**

  - definition: **The type attribute provides a classification for the resource.**
  - value_data_type: **ASCII_Short_String_Collapsed** - Enumerated
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**
  - permissible values
    PDS3 - The class definition is classified as being of type PDS3
    PDS4 - The class definition is classified as being of type PDS4

- **type in Facility**

steward: **pds**
namespace id: **pds**
class: **Facility**
version: **1.1**

- definition: **The type attribute provides a classification for the resource.**
- value_data_type: **ASCII_Short_String_Collapsed** - Enumerated
- minimum_characters: **1**
- maximum_characters: **255**
- nillable: **false**
- permissible values
  Laboratory - The Facility is classified as being of type Laboratory
  Observatory - The Facility is classified as being of type Observatory

- **type in Instrument**

  steward: **pds**
  namespace id: **pds**
  class: **Instrument**
  version: **1.1**

  - definition: **The type attribute provides a classification for the resource.**
  - value_data_type: **ASCII_Short_String_Collapsed** - Enumerated
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**
  - permissible values
    Accelerometer - An instrument that measures proper (i.e., its own) acceleration.
    Alpha Particle Detector - An instrument that measures the number and/or distribution of alpha particles.
    Alpha Particle Xray Spectrometer - An instrument that bombards a sample with alpha particles and X-rays and measures the energy spectrum of scattered alpha particles and X-rays to determine the sample's elemental composition.
    Altimeter - An instrument that measures its own altitude above a reference level (for example, a locally flat surface on the Earth)
    Anemometer - An in situ instrument that measures wind speed.
    Atomic Force Microscope - An instrument that uses atomic forces between a probe and a sample to produce high-resolution topographic scans of the sample.
    Barometer - An in situ instrument that measures atmospheric pressure.
    Biology Experiments - An instrument that conducts one or more experiments on samples to determine their potential for biological activity.
    Bolometer - An instrument that estimates radiation intensity by measuring changes in electrical resistivity as the temperature of its sensor varies in response to the incident power density.
    Camera - An instrument that records and stores analog images (compare 'imager').
    Cosmic Ray Detector - An instrument that detects and/or measures cosmic rays.
    Dust Detector - An instrument that detects and/or measures dust.
    Electrical Probe - An in situ instrument that measures electrical properties (e.g., conductivity) of a medium into which it is inserted.
    Energetic Particle Detector - An instrument that detects and/or measures energetic charged particles.
    Gamma Ray Detector - An instrument that detects and/or measures gamma rays.
    Gas Analyzer - A high-temperature furnace combined with a mass spectrometer that heats a sample and analyzes the mass distribution of the evolved gases.
    Grinding And Drilling Tool - A tool that grinds or drills into samples.
    Hygrometer - An instrument used to measure the moisture content of its environment.
    Imager - An instrument that records and stores digital images (compare 'camera').
    Imaging Spectrometer - An instrument that combines the functions of a spectrometer and an imager - i.e., it captures and stores multiple images, each at a slightly different wavelength.
    Inertial Measurement Unit - An instrument that measures changes in its own velocity and orientation by using a combination of accelerometers, gyroscopes, and/or other devices.
    Infrared Spectrometer - An instrument that measures the spectral distribution of infrared radiation.
    Laser Induced Breakdown Spectrometer - An instrument that uses an active laser to generate a plasma from a target and then measures the energy spectrum of the evolved plasma.
    Magnetometer - An instrument that measures the strength and/or direction of a magnetic field.
    Mass Spectrometer - An instrument that measures the number of particles in a sample as a function of their mass.
    Microwave Spectrometer - An instrument that measures the spectral distribution of microwave radiation.
    Moessbauer Spectrometer - An instrument that uses the Mossbauer effect to determine the abundance of Fe-bearing minerals in a sample.
    Naked Eye - Observations made with the naked eye and recorded in a data product.
    Neutral Particle Detector - An instrument that detects and/or measures neutral particles.
    Neutron Detector - An instrument that measures the number and/or energy distribution of neutrons.
    Photometer - An instrument that measures radiation intensity (e.g., of visible light), sometimes with the goal of inferring optical properties of materials illuminated by the source and observed by the photometer.
    Plasma Analyzer - An instrument that measures the spectral distribution of energy in a low-frequency plasma.
    Plasma Detector - An instrument that detects and/or measures low energy charged particles.
    Plasma Wave Spectrometer - An instrument that measures the energy distribution in a low-frequency plasma.
    Polarimeter - An instrument that measures the polarization of electromagnetic radiation.
    RADAR - An instrument that transmits and receives radio signals for the purpose of detecting, determining the range (distance) to, velocity of, and/or direction of one or more distant targets.

Radio Science - An instrument suite used to conduct measurements at radio frequencies.
Radio Spectrometer - An instrument that measures the spectral distribution of electromagnetic radiation at radio frequencies.
Radio Telescope - An instrument used to focus and capture radio waves.
Radiometer - An instrument which measures the radiant flux of electromagnetic radiation.
Reflectometer - An instrument that measures the reflectance of surfaces. An electron reflectometer measures the properties of electrons trapped along magnetic field lines to infer the strength and direction of the field remotely.
Robotic Arm - A tool used to place in-situ instruments on surface rocks or soil, dig into a surface, and/or to collect surface samples for other instruments to analyze on a spacecraft.
Spectrograph Imager - See Imaging Spectrometer.
Spectrometer - An instrument used to measure properties over a specific portion of a spectrum - for example, a mass spectrometer measures the number of particles in discrete mass ranges, and a radio spectrometer measures the amount of electromagnetic radiation as a function of frequency or wavelength.
Thermal And Electrical Conductivity Probe - An instrument that measures the thermal and electrical conductivity of a soil sample.
Thermal Imager - An instrument that captures an image at thermal infrared wavelengths.
Thermal Probe - An in situ instrument that measures thermal properties (e.g., temperature) at one or more points along its length.
Thermometer - An instrument that measures temperature.
Ultraviolet Spectrometer - An instrument that measures the spectral distribution of ultraviolet radiation.
Wet Chemistry Laboratory - An instrument that mixes soil samples with solutions to measure material properties such as pH, conductivity, oxidation-reduction potential, etc.
X-ray Defraction Spectrometer - An instrument that uses a beam of X-rays to probe the internal structure of a powdered sample and identify its mineral composition.
X-ray Detector - An instrument that detects and/or measures X-rays.
X-ray Fluorescence - An instrument that measures the emission of secondary X-rays from a sample that has been irradiated with X-rays to elemental composition of the sample.
X-ray Fluorescence Spectrometer - An instrument that measures the emission of secondary X-rays to determine the elemental composition of a sample that has been irradiated with primary X-rays.

- **type in Instrument_Host**

  steward: **pds**
  namespace id: **pds**
  class: **Instrument_Host**
  version: **1.1**

  - definition: **The type attribute classifies the instrument host. When more than one value is correct, the value with the finest granularity should be selected. That is, choose "rover" rather than "spacecraft" when both would be correct since rover more narrowly defines the type of instrument host.**
  - value_data_type: **ASCII_Short_String_Collapsed** - Enumerated
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**
  - permissible values
    Earth Based - The Instrument Host is classified as being of type Earth Based
    Earth-based - The instrument host is on or near the surface of Earth (no more than 100 km altitude above the surface).
    Lander - A spacecraft designed for descent to and operation at a single fixed point on the surface of a celestial body.
    Rover - A spacecraft designed for descent to and mobile operation on the surface of a celestial body.
    Spacecraft - A vehicle designed for travel in outer space ('outer space' is the region more than 100 km above the Earth's surface, a convention accepted in many contexts – see http://en.wikipedia.org/wiki/Outer_space).

- **type in Investigation**

  steward: **pds**
  namespace id: **pds**
  class: **Investigation**
  version: **1.1**

  - definition: **The type attribute provides a classification for the resource.**
  - value_data_type: **ASCII_Short_String_Collapsed** - Enumerated
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**
  - permissible values
    Individual Investigation - A set of experiments and/or observations with a clearly defined purpose that uses existing facilities and is under the direction of a single individual. For example, a series of related laboratory experiments/observations conducted by a small university team and funded through a single proposal could be an Individual Investigation. Library research by one person on previously published results to distill common conclusions could also be an Individual Investigation.
    Mission - A set of experiments and/or observations with a clearly defined purpose that occupies the designated resources for all (or at least a significant fraction) of the available time. A mission is usually conducted by a national or international space agency using a small number (often one) of spacecraft especially designed and built for the purpose. For example: (1) the NASA Voyager mission launched two spacecraft to Jupiter and Saturn; (2) the Deep Impact (DI) mission launched a spacecraft, part of which impacted the comet Tempel 2; and (3) the EPOXI mission redefined the objectives of the surviving DI hardware for further exploration of the solar system.

Observing Campaign - A set of experiments and/or observations with a clearly defined purpose that uses (primarily) existing facilities, but not exclusively. After (and possibly during) the campaign other investigations are carried out using the same facilities. For example, the International Halley Watch mobilized observatories around the world for collection of data during the most recent apparition of Comet Halley. The Shoemaker-Levy-9 (SL9) campaign used both Earth-based and spacecraft instruments to monitor the SL9 impact on Jupiter.
Other Investigation - Any other set of experiments and/or observations with a unifying theme.

- **type in Investigation_Area**

  steward: **pds**
  namespace id: **pds**
  class: **Investigation_Area**
  version: **1.1**

  - definition: **The type attribute provides a classification for the resource.**
  - value_data_type: **ASCII_Short_String_Collapsed** - Enumerated
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**
  - permissible values
    Individual Investigation - A set of experiments and/or observations with a clearly defined purpose that uses existing facilities and is under the direction of a single individual. For example, a series of related laboratory experiments/observations conducted by a small university team and funded through a single proposal could be an Individual Investigation. Library research by one person on previously published results to distill common conclusions could also be an Individual Investigation.
    Mission - A set of experiments and/or observations with a clearly defined purpose that occupies the designated resources for all (or at least a significant fraction) of the available time. A mission is usually conducted by a national or international space agency using a small number (often one) of spacecraft especially designed and built for the purpose. For example: (1) the NASA Voyager mission launched two spacecraft to Jupiter and Saturn; (2) the Deep Impact (DI) mission launched a spacecraft, part of which impacted the comet Tempel 2; and (3) the EPOXI mission redefined the objectives of the surviving DI hardware for further exploration of the solar system.
    Observing Campaign - A set of experiments and/or observations with a clearly defined purpose that uses (primarily) existing facilities, but not exclusively. After (and possibly during) the campaign other investigations are carried out using the same facilities. For example, the International Halley Watch mobilized observatories around the world for collection of data during the most recent apparition of Comet Halley. The Shoemaker-Levy-9 (SL9) campaign used both Earth-based and spacecraft instruments to monitor the SL9 impact on Jupiter.
    Other Investigation - Any other set of experiments and/or observations with a unifying theme.

- **type in Observing_System_Component**

  steward: **pds**
  namespace id: **pds**
  class: **Observing_System_Component**
  version: **1.1**

  - definition: **The type attribute provides a classification for the resource.**
  - value_data_type: **ASCII_Short_String_Collapsed** - Enumerated
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**
  - permissible values
    Artificial Illumination - The observing system component is classified as Artificial Illumination
    Instrument - The observing system component is classified as Instrument
    Laboratory - The observing system component is classified as Laboratory
    Literature Search - The observing system component is classified as Literature Search
    Naked Eye - The observing system component is classified as Naked Eye (a person)
    Observatory - The observing system component is classified as Observatory
    Spacecraft - The observing system component is classified as Spacecraft
    Telescope - The observing system component is classified as Telescope

- **type in Primary_Result_Summary**

  steward: **pds**
  namespace id: **pds**
  class: **Primary_Result_Summary**
  version: **1.1**

  - definition: **The type attribute provides a classification for the resource.**
  - value_data_type: **ASCII_Short_String_Collapsed** - Enumerated
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**
  - permissible values
    Altimetry - Measurement of altitude.
    Astrometry - Precise measurement of positions of heavenly bodies.
    Count - A recording of the number of discrete events
    E/B-Field Vectors - Arrays populated by values of the electric/magnetic field in three orthogonal directions.

Gravity Model - An approximation to the gravity field of an object derived from measurement and/or theory
Image - A two-dimensional representation of a field of view
Lightcurves - This value indicates data products containing time-sequences of magnitude measurements for one or more individual targets (typically asteroids or comets).
Map - A two-dimensional representation of the plan view of a surface
Meteorology - Measurements of the meteorological conditions of an atmosphere such as pressure, temperature, wind speed, etc.
Null Result - Measurements which failed.
Occultation - Measurements conducted when one celestial body progressively hides another
Photometry - Measurement of light flux
Physical Parameters - This value indicates data products containing compilations of one or more physical parameters - like albedo, density, absolute magnitude, etc. It is generally used for data that combines these highly-derived results from multiple sources.
Polarimetry - Measurement of the polarization state of radiation.
Radiometry - Measurement of the radiation coming from a body, usually at infrared and longer wavelengths
Reference - A Reference product provides ancillary information needed to support the use of another data product. Reference products include things like tables of foot notes or lists of detailed citations, and are usually associated with data products compiled from the published literature.
Shape Model - An approximation to the shape of an object derived from measurements and/or theory
Spectrum - An array containing values of a dependent variable as a function of an independent variable.

- **type in Quaternion**

  steward: **pds**
  namespace id: **pds**
  class: **Quaternion**
  version: **1.1**

  - definition: **The type attribute provides a classification for the resource.**
  - value_data_type: **ASCII_Short_String_Collapsed** - Enumerated
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**
  - permissible values
    SPICE - Quaternion is type SPICE. This quaternion system defines components zero through three, with the 0th component as the scalar, and the 1st, 2nd and 3rd the vector components.
    Spacecraft Telemetry - Quaternion is type Spacecraft Telemetry. This quaternion system defines components one through four, with the fourth component as the scalar, and the 1st, 2nd and 3rd as the vector components.

- **type in Resource**

  steward: **pds**
  namespace id: **pds**
  class: **Resource**
  version: **1.1**

  - definition: **The type attribute provides a classification for the resource.**
  - value_data_type: **ASCII_Short_String_Collapsed** - Enumerated
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**
  - permissible values
    Information.Agency - An information resource that describes an agency.
    Information.Instrument - An information resource that describes an instrument
    Information.Instrument_Host - An information resource that describes an instrument host
    Information.Investigation - An information resource that describes an investigation
    Information.Node - An information resource that describes a node
    Information.Person - An information resource that describes a person
    Information.Resource - An information resource that describes a generic resource
    Information.Science_Portal - An information resource that describes a science portal
    Information.Target - An information resource that describes a target
    System.Browse - A system resource that provides browse functionality.
    System.Directory_Listing - A system resource that provides a directory listing.
    System.Registry_Query - A system resource for registry query.
    System.Search - A system resource that provides search functionality.
    System.Transform - A system resource that provides transform functionality.
    System.Transport - A system resource that provides transport functionality.

- **type in Target**

  steward: **pds**
  namespace id: **pds**
  class: **Target**
  version: **1.1**

  - definition: **The type attribute provides a classification for the resource.**
  - value_data_type: **ASCII_Short_String_Collapsed** - Enumerated

- minimum_characters: **1**
- maximum_characters: **255**
- nillable: **false**
- permissible values
  Asteroid - The Target is classified as an Asteroid
  Comet - The Target is classified as a Comet
  Dust - The Target is classified as Dust
  Dwarf Planet - The Target is classified as a Dwarf Planet
  Galaxy - The Target is classified as a Galaxy
  Globular Cluster - The Target is classified as a Globular Cluster
  Meteorite - The Target is classified as a Meteorite
  Meteoroid - The Target is classified as a Meteoroid
  Meteoroid Stream - The Target is classified as a Meteoroid Stream
  Nebula - The Target is classified as a Nebula
  Open Cluster - The Target is classified as an Open Cluster
  Planet - The Target is classified as a Planet
  Planetary Nebula - The Target is classified as a Planetary Nebula
  Planetary System - The Target is classified as a Planetary System
  Plasma Cloud - The Target is classified as a Plasma Cloud
  Ring - The Target is classified as a Ring
  Satellite - The Target is classified as a Satellite
  Star - The Target is classified as a Star
  Star Cluster - The Target is classified as a Star Cluster
  Sun - The Target is classified as a Sun
  Terrestrial Sample - The Target is classified as a Terrestrial Sample
  Trans-Neptunian Object - The Target is classified as a Trans-Neptunian Object

- **type in Target_Identification**

  steward: **pds**
  namespace id: **pds**
  class: **Target_Identification**
  version: **1.1**

  - definition: **The type attribute provides a target's type, used to determine correct nomenclature for the name field.**
  - value_data_type: **ASCII_Short_String_Collapsed** - Enumerated
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**
  - permissible values
    Asteroid - The Target is classified as an Asteroid
    Comet - The Target is classified as a Comet
    Dust - The Target is classified as Dust
    Dwarf Planet - The Target is classified as a Dwarf Planet
    Galaxy - The Target is classified as a Galaxy
    Globular Cluster - The Target is classified as a Globular Cluster
    Meteorite - The Target is classified as a Meteorite
    Meteoroid - The Target is classified as a Meteoroid
    Meteoroid Stream - The Target is classified as a Meteoroid Stream
    Nebula - The Target is classified as a Nebula
    Open Cluster - The Target is classified as an Open Cluster
    Planet - The Target is classified as a Planet
    Planetary Nebula - The Target is classified as a Planetary Nebula
    Planetary System - The Target is classified as a Planetary System
    Plasma Cloud - The Target is classified as a Plasma Cloud
    Ring - The Target is classified as a Ring
    Satellite - The Target is classified as a Satellite
    Star - The Target is classified as a Star
    Star Cluster - The Target is classified as a Star Cluster
    Sun - The Target is classified as a Sun
    Terrestrial Sample - The Target is classified as a Terrestrial Sample
    Trans-Neptunian Object - The Target is classified as a Trans-Neptunian Object

- **type in Vector**

  steward: **pds**
  namespace id: **pds**
  class: **Vector**
  version: **1.1**

  - definition: **The type attribute provides a classification for the resource.**
  - value_data_type: **ASCII_Short_String_Collapsed** - Enumerated
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**
  - permissible values

Acceleration - Vector is type Acceleration
Pointing - Vector is type Pointing
Position - Vector is type Position
Velocity - Vector is type Velocity

- **unit in Axis_Array**

  steward: **pds**
  namespace id: **pds**
  class: **Axis_Array**
  version: **1.1**

  - definition: **The unit attribute provides the unit of measurement.**
  - value_data_type: **UTF8_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **unit in Element_Array**

  steward: **pds**
  namespace id: **pds**
  class: **Element_Array**
  version: **1.1**

  - definition: **The unit attribute provides the unit of measurement.**
  - value_data_type: **UTF8_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **unit in Field_Binary**

  steward: **pds**
  namespace id: **pds**
  class: **Field_Binary**
  version: **1.1**

  - definition: **The unit attribute provides the unit of measurement.**
  - value_data_type: **UTF8_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **unit in Field_Bit**

  steward: **pds**
  namespace id: **pds**
  class: **Field_Bit**
  version: **1.1**

  - definition: **The unit attribute provides the unit of measurement.**
  - value_data_type: **UTF8_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **unit in Field_Character**

  steward: **pds**
  namespace id: **pds**
  class: **Field_Character**
  version: **1.1**

  - definition: **The unit attribute provides the unit of measurement.**
  - value_data_type: **UTF8_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **unit in Field_Delimited**

  steward: **pds**
  namespace id: **pds**
  class: **Field_Delimited**

version: **1.1**

- definition: **The unit attribute provides the unit of measurement.**
- value_data_type: **UTF8_Short_String_Collapsed**
- minimum_characters: **1**
- maximum_characters: **255**
- nillable: **false**

- **unit in Vector_Component**

  steward: **pds**
  namespace id: **pds**
  class: **Vector_Component**
  version: **1.1**

  - definition: **The unit attribute provides the unit of measurement.**
  - value_data_type: **UTF8_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **unit_of_measure_type in DD_Value_Domain**

  steward: **ops**
  namespace id: **pds**
  class: **DD_Value_Domain**
  version: **1.1**

  - definition: **The unit_of_measure_type attribute provides the named grouping of units to be used for this attribute - for example Units_of_Length and Units_of_Time.**
  - value_data_type: **ASCII_Short_String_Collapsed** - Enumerated
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**
  - permissible values
    Units_of_Acceleration - The value is given in a unit which conveys acceleration
    Units_of_Amount_Of_Substance - The value is given in a unit which conveys amount of substance
    Units_of_Angle - The value is given in a unit which conveys angle
    Units_of_Angular_Velocity - The value is given in a unit which conveys angular velocity
    Units_of_Area - The value is given in a unit which conveys area
    Units_of_Frame_Rate - The value is given in a unit which conveys frame rate
    Units_of_Frequency - The value is given in a unit which conveys frequency
    Units_of_Length - The value is given in a unit which conveys length
    Units_of_Map_Scale - The value is given in a unit which conveys map scale
    Units_of_Mass - The value is given in a unit which conveys mass
    Units_of_Misc - The value is given in a unit which is in a miscellaneous category
    Units_of_None - The value is given without regard to a unit of measure
    Units_of_Optical_Path_Length - The value is given in a unit which conveys optical path length
    Units_of_Pressure - The value is given in a unit which conveys pressure
    Units_of_Radiance - The value is given in a unit which conveys radiance
    Units_of_Rates - The value is given in a unit which conveys rates or counts per unit time
    Units_of_Solid_Angle - The value is given in a unit which conveys solid angle
    Units_of_Spectral_Irradiance - The value is given in a unit which conveys spectral irradiance
    Units_of_Spectral_Radiance - The value is given in a unit which conveys spectral radiance
    Units_of_Storage - The value is given in a unit which conveys computer storage
    Units_of_Temperature - The value is given in a unit which conveys temperature
    Units_of_Time - The value is given in a unit which conveys time
    Units_of_Velocity - The value is given in a unit which conveys velocity
    Units_of_Voltage - The value is given in a unit which conveys voltage
    Units_of_Volume - The value is given in a unit which conveys volume
    Units_of_Wavenumber - The value is given in a unit which conveys wavenumber

- **unit_of_measure_type in DD_Value_Domain_Full**

  steward: **ops**
  namespace id: **pds**
  class: **DD_Value_Domain_Full**
  version: **1.1**

  - definition: **The unit_of_measure_type attribute provides the named grouping of units to be used for this attribute - for example Units_of_Length and Units_of_Time.**
  - value_data_type: **ASCII_Short_String_Collapsed** - Enumerated
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**
  - permissible values
    Units_of_Amount_Of_Substance - The value is given in a unit which conveys amount of substance

Units_of_Angle - The value is given in a unit which conveys angle
Units_of_Angular_Velocity - The value is given in a unit which conveys angular velocity
Units_of_Area - The value is given in a unit which conveys area
Units_of_Frame_Rate - The value is given in a unit which conveys frame rate
Units_of_Frequency - The value is given in a unit which conveys frequency
Units_of_Length - The value is given in a unit which conveys length
Units_of_Map_Scale - The value is given in a unit which conveys map scale
Units_of_Mass - The value is given in a unit which conveys mass
Units_of_Misc - The value is given in a unit which is in a miscellaneous category
Units_of_None - The value is given without regard to a unit of measure
Units_of_Optical_Path_Length - The value is given in a unit which conveys optical path length
Units_of_Pressure - The value is given in a unit which conveys pressure
Units_of_Radiance - The value is given in a unit which conveys radiance
Units_of_Rates - The value is given in a unit which conveys rates or counts per unit time
Units_of_Solid_Angle - The value is given in a unit which conveys solid angle
Units_of_Spectral_Irradiance - The value is given in a unit which conveys spectral irradiance
Units_of_Spectral_Radiance - The value is given in a unit which conveys spectral radiance
Units_of_Storage - The value is given in a unit which conveys computer storage
Units_of_Temperature - The value is given in a unit which conveys temperature
Units_of_Time - The value is given in a unit which conveys time
Units_of_Velocity - The value is given in a unit which conveys velocity
Units_of_Voltage - The value is given in a unit which conveys voltage
Units_of_Volume - The value is given in a unit which conveys volume
Units_of_Wavenumber - The value is given in a unit which conveys wavenumber

- **unknown_constant in Special_Constants**

  steward: **pds**
  namespace id: **pds**
  class: **Special_Constants**
  version: **1.1**

  - definition: **The unknown_constant attribute provides a value that indicates the original value was unknown.**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **url in External_Reference_Extended**

  steward: **ops**
  namespace id: **pds**
  class: **External_Reference_Extended**
  version: **1.1**

  - definition: **The url attribute provides a Uniform Resource Identifier (URI) that specifies where a resource is available and the mechanism for retrieving it.**
  - value_data_type: **ASCII_AnyURI**
  - nillable: **false**

- **url in Resource**

  steward: **pds**
  namespace id: **pds**
  class: **Resource**
  version: **1.1**

  - definition: **The url attribute provides a Uniform Resource Identifier (URI) that specifies where a resource is available and the mechanism for retrieving it.**
  - value_data_type: **ASCII_AnyURI**
  - nillable: **false**

- **users_manual_id in Software**

  steward: **ops**
  namespace id: **pds**
  class: **Software**
  version: **1.1**

  - definition: **The users manual id attribute provides a formal name used to refer to a manual that describes how to use the software.**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **valid_maximum in Special_Constants**

  steward: **pds**
  namespace id: **pds**
  class: **Special_Constants**
  version: **1.1**

  - definition: **The valid_maximum attribute specifies the maximum valid value in the field or digital object with which the Special_Constants class is associated. Values above the valid_maximum have a special meaning. Values of this attribute should be represented in the same data_type as the elements in the object or field described. (Note that PDS3 had no qube-related valid_maximum values because all special constants were set below the valid_minimum.)**
  - value_data_type: **ASCII_Short_String_Collapsed** - Enumerated
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**
  - permissible values
    254 - conventional ISIS 2/3 qube value for a one byte unsigned integer data type
    32767 - conventional ISIS 2/3 qube value for a two byte signed integer data type
    65522 - conventional ISIS 3 qube value for a two byte unsigned integer data type (Note that

- **valid_minimum in Special_Constants**

  steward: **pds**
  namespace id: **pds**
  class: **Special_Constants**
  version: **1.1**

  - definition: **The valid_minimum attribute specifies the minimum valid value in the field or digital object with which the Special_Constants class is associated. Values below the valid_minimum have a special meaning. Values of this attribute should be represented in the same data_type as the elements in the object or field described.**
  - value_data_type: **ASCII_Short_String_Collapsed** - Enumerated
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**
  - permissible values
    -32752 - conventional PDS3 and ISIS 2/3 qube value for a two byte signed integer data type
    1 - conventional ISIS 2/3 qube value for a one byte unsigned integer data type
    3 - conventional ISIS 3 qube value for a two byte unsigned integer data type
    5 - conventional PDS3 qube value for any unsigned integer data type
    FF7FFFFA - conventional ISIS 2 qube value for a four byte IEEE floating point data type
    FFEFFFFF - conventional PDS3 and ISIS 2 qube value for a four byte VAX floating point data type

- **value in DD_Permissible_Value**

  steward: **ops**
  namespace id: **pds**
  class: **DD_Permissible_Value**
  version: **1.1**

  - definition: **The value attribute provides a single, allowed numerical or character string value.**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **value in DD_Permissible_Value_Full**

  steward: **ops**
  namespace id: **pds**
  class: **DD_Permissible_Value_Full**
  version: **1.1**

  - definition: **The value attribute provides a single, allowed numerical or character string value.**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **value in Quaternion_Component**

  steward: **pds**
  namespace id: **pds**
  class: **Quaternion_Component**
  version: **1.1**

- definition: **The value attribute provides a single, allowed numerical or character string value.**
- value_data_type: **ASCII_Short_String_Collapsed**
- minimum_characters: **1**
- maximum_characters: **255**
- nillable: **false**

- **value in Vector_Component**

  steward: **pds**
  namespace id: **pds**
  class: **Vector_Component**
  version: **1.1**

  - definition: **The value attribute provides a single, allowed numerical or character string value.**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **value_begin_date in DD_Permissible_Value_Full**

  steward: **ops**
  namespace id: **pds**
  class: **DD_Permissible_Value_Full**
  version: **1.1**

  - definition: **The value_begin_date attribute provides the first date on which the permissible value is in effect.**
  - value_data_type: **ASCII_Date_Time_YMD**
  - format: **YYYY-MM-DDTHH:MM:SS.SSS(Z)**
  - nillable: **false**

- **value_data_type in DD_Value_Domain**

  steward: **ops**
  namespace id: **pds**
  class: **DD_Value_Domain**
  version: **1.1**

  - definition: **The value_data_type attribute provides the data type used to represent the value.**
  - value_data_type: **ASCII_Short_String_Collapsed** - Enumerated
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**
  - permissible values
    ASCII_AnyURI - The value is expressed using the data type ASCII_AnyURI
    ASCII_Boolean - The value is expressed using the data type ASCII_Boolean
    ASCII_DOI - The value is expressed using the data type ASCII_DOI
    ASCII_Date_DOY - The value is expressed using the data type ASCII_Date_DOY
    ASCII_Date_Time - The value is expressed using the data type ASCII_Date_Time
    ASCII_Date_Time_DOY - The value is expressed using the data type ASCII_Date_Time_DOY
    ASCII_Date_Time_UTC - The value is expressed using the data type ASCII_Date_Time_UTC
    ASCII_Date_Time_YMD - The value is expressed using the data type ASCII_Date_Time_YMD
    ASCII_Date_YMD - The value is expressed using the data type ASCII_Date_YMD
    ASCII_Directory_Path_Name - The value is expressed using the data type ASCII_Directory_Path_Name
    ASCII_File_Name - The value is expressed using the data type ASCII_File_Name
    ASCII_File_Specification_Name - The value is expressed using the data type ASCII_File_Specification_Name
    ASCII_Integer - The value is expressed using the data type ASCII_Integer
    ASCII_LID - The value is expressed using the data type ASCII_LID
    ASCII_LIDVID - The value is expressed using the data type ASCII_LIDVID
    ASCII_LIDVID_LID - The value is expressed using the data type ASCII_LIDVID_LID
    ASCII_MD5_Checksum - The value is expressed using the data type ASCII_MD5_Checksum
    ASCII_NonNegative_Integer - The value is expressed using the data type ASCII_NonNegative_Integer
    ASCII_Numeric_Base16 - The value is expressed using the data type ASCII_Numeric_Base16
    ASCII_Numeric_Base2 - The value is expressed using the data type ASCII_Numeric_Base2
    ASCII_Numeric_Base8 - The value is expressed using the data type ASCII_Numeric_Base8
    ASCII_Real - The value is expressed using the data type ASCII_Real
    ASCII_Short_String_Collapsed - The value is expressed using the data type ASCII_Short_String_Collapsed
    ASCII_Short_String_Preserved - The value is expressed using the data type ASCII_Short_String_Preserved
    ASCII_Text_Collapsed - The value is expressed using the data type ASCII_Text_Collapsed
    ASCII_Text_Preserved - The value is expressed using the data type ASCII_Text_Preserved
    ASCII_Time - The value is expressed using the data type ASCII_Time
    ASCII_VID - The value is expressed using the data type ASCII_VID
    UTF8_Short_String_Collapsed - The value is expressed using the data type UTF8_Short_String_Collapsed
    UTF8_Short_String_Preserved - The value is expressed using the data type UTF8_Short_String_Preserved
    UTF8_Text_Preserved - The value is expressed using the data type UTF8_Text_Preserved
    Vector_Cartesian_3 - The value is expressed using the data type Vector_Cartesian_3

Vector_Cartesian_3_Acceleration - The value is expressed using the data type Vector_Cartesian_3_Acceleration
Vector_Cartesian_3_Pointing - The value is expressed using the data type Vector_Cartesian_3_Pointing
Vector_Cartesian_3_Position - The value is expressed using the data type Vector_Cartesian_3_Position
Vector_Cartesian_3_Velocity - The value is expressed using the data type Vector_Cartesian_3_Velocity

- **value_data_type in DD_Value_Domain_Full**

  steward: **ops**
  namespace id: **pds**
  class: **DD_Value_Domain_Full**
  version: **1.1**

  - definition: **The value_data_type attribute provides the data type used to represent the value.**
  - value_data_type: **ASCII_Short_String_Collapsed** - Enumerated
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**
  - permissible values
    ASCII_AnyURI - The value is expressed using the data type ASCII_AnyURI
    ASCII_Boolean - The value is expressed using the data type ASCII_Boolean
    ASCII_DOI - The value is expressed using the data type ASCII_DOI
    ASCII_Date_DOY - The value is expressed using the data type ASCII_Date_DOY
    ASCII_Date_Time - The value is expressed using the data type ASCII_Date_Time
    ASCII_Date_Time_DOY - The value is expressed using the data type ASCII_Date_Time_DOY
    ASCII_Date_Time_UTC - The value is expressed using the data type ASCII_Date_Time_UTC
    ASCII_Date_Time_YMD - The value is expressed using the data type ASCII_Date_Time_YMD
    ASCII_Date_YMD - The value is expressed using the data type ASCII_Date_YMD
    ASCII_Directory_Path_Name - The value is expressed using the data type ASCII_Directory_Path_Name
    ASCII_File_Name - The value is expressed using the data type ASCII_File_Name
    ASCII_File_Specification_Name - The value is expressed using the data type ASCII_File_Specification_Name
    ASCII_Integer - The value is expressed using the data type ASCII_Integer
    ASCII_LID - The value is expressed using the data type ASCII_LID
    ASCII_LIDVID - The value is expressed using the data type ASCII_LIDVID
    ASCII_LIDVID_LID - The value is expressed using the data type ASCII_LIDVID_LID
    ASCII_MD5_Checksum - The value is expressed using the data type ASCII_MD5_Checksum
    ASCII_NonNegative_Integer - The value is expressed using the data type ASCII_NonNegative_Integer
    ASCII_Numeric_Base16 - The value is expressed using the data type ASCII_Numeric_Base16
    ASCII_Numeric_Base2 - The value is expressed using the data type ASCII_Numeric_Base2
    ASCII_Numeric_Base8 - The value is expressed using the data type ASCII_Numeric_Base8
    ASCII_Real - The value is expressed using the data type ASCII_Real
    ASCII_Short_String_Collapsed - The value is expressed using the data type ASCII_Short_String_Collapsed
    ASCII_Short_String_Preserved - The value is expressed using the data type ASCII_Short_String_Preserved
    ASCII_Text_Collapsed - The value is expressed using the data type ASCII_Text_Collapsed
    ASCII_Text_Preserved - The value is expressed using the data type ASCII_Text_Preserved
    ASCII_Time - The value is expressed using the data type ASCII_Time
    ASCII_VID - The value is expressed using the data type ASCII_VID
    UTF8_Short_String_Collapsed - The value is expressed using the data type UTF8_Short_String_Collapsed
    UTF8_Short_String_Preserved - The value is expressed using the data type UTF8_Short_String_Preserved
    UTF8_Text_Preserved - The value is expressed using the data type UTF8_Text_Preserved

- **value_end_date in DD_Permissible_Value_Full**

  steward: **ops**
  namespace id: **pds**
  class: **DD_Permissible_Value_Full**
  version: **1.1**

  - definition: **The value_end_date attribute provides the last date on which the permissible value is in effect.**
  - value_data_type: **ASCII_Date_Time_YMD**
  - format: **YYYY-MM-DDTHH:MM:SS.SSS(Z)**
  - nillable: **false**

- **value_meaning in DD_Permissible_Value**

  steward: **ops**
  namespace id: **pds**
  class: **DD_Permissible_Value**
  version: **1.1**

  - definition: **The value_meaning attribute provides the meaning, or semantic content, of the associated permissible value.**
  - value_data_type: **ASCII_Text_Preserved**
  - minimum_characters: **1**
  - nillable: **false**

- **value_meaning in DD_Permissible_Value_Full**

steward: **ops**
namespace id: **pds**
class: **DD_Permissible_Value_Full**
version: **1.1**

- definition: **The value_meaning attribute provides the meaning, or semantic content, of the associated permissible value.**
- value_data_type: **ASCII_Text_Preserved**
- minimum_characters: **1**
- nillable: **false**

- **value_offset in Band_Bin**

steward: **img**
namespace id: **pds**
class: **Band_Bin**
version: **1.1**

- definition: **The value_offset attribute is the offset to be applied to each stored value in order to recover an original value. The observed value (Ov) is calculated from the stored value (Sv) thus: Ov = (Sv * scaling_factor) + value_offset. The default value is 0.**
- value_data_type: **ASCII_Real**
- nillable: **false**

- **value_offset in Element_Array**

steward: **pds**
namespace id: **pds**
class: **Element_Array**
version: **1.1**

- definition: **The value_offset attribute is the offset to be applied to each stored value in order to recover an original value. The observed value (Ov) is calculated from the stored value (Sv) thus: Ov = (Sv * scaling_factor) + value_offset. The default value is 0.**
- value_data_type: **ASCII_Real**
- nillable: **false**

- **value_offset in Field_Binary**

steward: **pds**
namespace id: **pds**
class: **Field_Binary**
version: **1.1**

- definition: **The value_offset attribute is the offset to be applied to each stored value in order to recover an original value. The observed value (Ov) is calculated from the stored value (Sv) thus: Ov = (Sv * scaling_factor) + value_offset. The default value is 0.**
- value_data_type: **ASCII_Real**
- nillable: **false**

- **value_offset in Field_Bit**

steward: **pds**
namespace id: **pds**
class: **Field_Bit**
version: **1.1**

- definition: **The value_offset attribute is the offset to be applied to each stored value in order to recover an original value. The observed value (Ov) is calculated from the stored value (Sv) thus: Ov = (Sv * scaling_factor) + value_offset. The default value is 0.**
- value_data_type: **ASCII_Real**
- nillable: **false**

- **value_offset in Field_Character**

steward: **pds**
namespace id: **pds**
class: **Field_Character**
version: **1.1**

- definition: **The value_offset attribute is the offset to be applied to each stored value in order to recover an original value. The observed value (Ov) is calculated from the stored value (Sv) thus: Ov = (Sv * scaling_factor) + value_offset. The default value is 0.**
- value_data_type: **ASCII_Real**
- nillable: **false**

- **value_offset in Field_Delimited**

  steward: **pds**
  namespace id: **pds**
  class: **Field_Delimited**
  version: **1.1**

    - definition: **The value_offset attribute is the offset to be applied to each stored value in order to recover an original value. The observed value (Ov) is calculated from the stored value (Sv) thus: Ov = (Sv * scaling_factor) + value_offset. The default value is 0.**
    - value_data_type: **ASCII_Real**
    - nillable: **false**

- **vector_components in Vector**

  steward: **pds**
  namespace id: **pds**
  class: **Vector**
  version: **1.1**

    - definition: **The vector_components attribute provides a count of vector components.**
    - value_data_type: **ASCII_Integer**
    - nillable: **false**

- **version_id in DD_Attribute**

  steward: **ops**
  namespace id: **pds**
  class: **DD_Attribute**
  version: **1.1**

    - definition: **The version_id attribute provides the version of the product, expressed in the PDS [m.n] notation.**
    - value_data_type: **ASCII_Short_String_Collapsed**
    - minimum_characters: **1**
    - maximum_characters: **255**
    - nillable: **false**

- **version_id in DD_Attribute_Full**

  steward: **ops**
  namespace id: **pds**
  class: **DD_Attribute_Full**
  version: **1.1**

    - definition: **The version_id attribute provides the version of the product, expressed in the PDS [m.n] notation.**
    - value_data_type: **ASCII_Short_String_Collapsed**
    - minimum_characters: **1**
    - maximum_characters: **255**
    - nillable: **false**

- **version_id in DD_Class**

  steward: **ops**
  namespace id: **pds**
  class: **DD_Class**
  version: **1.1**

    - definition: **The version_id attribute provides the version of the product, expressed in the PDS [m.n] notation.**
    - value_data_type: **ASCII_Short_String_Collapsed**
    - minimum_characters: **1**
    - maximum_characters: **255**
    - nillable: **false**

- **version_id in DD_Class_Full**

  steward: **ops**
  namespace id: **pds**
  class: **DD_Class_Full**
  version: **1.1**

    - definition: **The version_id attribute provides the version of the product, expressed in the PDS [m.n] notation.**
    - value_data_type: **ASCII_Short_String_Collapsed**
    - minimum_characters: **1**
    - maximum_characters: **255**
    - nillable: **false**

- **version_id in Software**

  steward: **ops**
  namespace id: **pds**
  class: **Software**
  version: **1.1**

  - definition: **The version_id attribute provides the version of the product, expressed in the PDS [m.n] notation.**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **version_id in Identification_Area**

  steward: **pds**
  namespace id: **pds**
  class: **Identification_Area**
  version: **1.1**

  - definition: **The version_id attribute provides the version of the product, expressed in the PDS [m.n] notation.**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - pattern: **([0-9])(\.){1}([0-9])**
  - nillable: **false**

- **version_id in Instrument_Host**

  steward: **pds**
  namespace id: **pds**
  class: **Instrument_Host**
  version: **1.1**

  - definition: **The version_id attribute provides the version of the product, expressed in the PDS [m.n] notation.**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **version_id in Modification_Detail**

  steward: **pds**
  namespace id: **pds**
  class: **Modification_Detail**
  version: **1.1**

  - definition: **The version_id attribute provides the version of the product, expressed in the PDS [m.n] notation.**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - pattern: **([0-9])(\.){1}([0-9])**
  - nillable: **false**

- **volume_de_fullname in Volume_PDS3**

  steward: **ops**
  namespace id: **pds**
  class: **Volume_PDS3**
  version: **1.1**

  - definition: **The volume_de_fullname attribute provide the full name of the data engineer.**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **volume_format in Volume_PDS3**

  steward: **ops**
  namespace id: **pds**
  class: **Volume_PDS3**
  version: **1.1**

  - definition: **The volume_format attribute identifies the logical format used in writing a data volume.**

- value_data_type: **ASCII_Short_String_Collapsed**
- minimum_characters: **1**
- maximum_characters: **255**
- nillable: **false**

- **volume_id in Volume_PDS3**

  steward: **ops**
  namespace id: **pds**
  class: **Volume_PDS3**
  version: **1.1**

  - definition: **The volume_id attribute provides a unique identifier for a data volume. Example: MG_1001.**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **volume_name in Volume_PDS3**

  steward: **ops**
  namespace id: **pds**
  class: **Volume_PDS3**
  version: **1.1**

  - definition: **The volume_name attribute contains the name of a data volume.**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **volume_series_name in Volume_Set_PDS3**

  steward: **ops**
  namespace id: **pds**
  class: **Volume_Set_PDS3**
  version: **1.1**

  - definition: **The volume_series_name element provides a full, formal name that describes a broad categorization of data products or data sets related to a planetary body or a research campaign (e.g. International Halley Watch). A volume series consists of one or more volume sets that represent data from one or more missions or campaigns.**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **volume_set_id in Volume_PDS3**

  steward: **ops**
  namespace id: **pds**
  class: **Volume_PDS3**
  version: **1.1**

  - definition: **The volume_set_id attribute identifies a data volume or a set of volumes. Volume sets are normally considered as a single orderable entity. Examples: USA_NASA_PDS_MG_1001, USA_NASA_PDS_GR_0001_TO_GR_0009**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **volume_set_id in Volume_Set_PDS3**

  steward: **ops**
  namespace id: **pds**
  class: **Volume_Set_PDS3**
  version: **1.1**

  - definition: **The volume_set_id attribute identifies a data volume or a set of volumes. Volume sets are normally considered as a single orderable entity. Examples: USA_NASA_PDS_MG_1001, USA_NASA_PDS_GR_0001_TO_GR_0009**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **volume_set_name in Volume_Set_PDS3**

  steward: **ops**
  namespace id: **pds**
  class: **Volume_Set_PDS3**
  version: **1.1**

  - definition: **The volume_set_name element provides the full, formal name of one or more data volumes containing a single data set or a collection of related data sets. Volume sets are normally considered as a single orderable entity.**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **volume_size in Volume_PDS3**

  steward: **ops**
  namespace id: **pds**
  class: **Volume_PDS3**
  version: **1.1**

  - definition: **The volume size attribute provide the number of bytes in the volume.**
  - value_data_type: **ASCII_NonNegative_Integer**
  - minimum_value: **0**
  - nillable: **false**

- **volume_version_id in Volume_PDS3**

  steward: **ops**
  namespace id: **pds**
  class: **Volume_PDS3**
  version: **1.1**

  - definition: **The volume_version_id attribute identifies the version of a data volume. All original volumes should use a volume_version_id of 'Version 1'.**
  - value_data_type: **ASCII_Short_String_Collapsed**
  - minimum_characters: **1**
  - maximum_characters: **255**
  - nillable: **false**

- **volumes in Volume_Set_PDS3**

  steward: **ops**
  namespace id: **pds**
  class: **Volume_Set_PDS3**
  version: **1.1**

  - definition: **The volumes element provides the number of physical data volumes contained in a volume set.**
  - value_data_type: **ASCII_Integer**
  - minimum_value: **0**
  - nillable: **false**

- **wavelength in Radio_Occultation**

  steward: **rings**
  namespace id: **rings**
  class: **Radio_Occultation**
  version: **1.1**

  - definition: *wavelength of the observation. Optional in labels. If the observation is over a wavelength range, use the corresponding minimum and maximum attributes instead. Nillable in which case the nil_reason should be 'inapplicable'. *
  - value_data_type: **ASCII_Real**
  - unit_of_measure_type: **Units_of_Length**
  - valid units: **AU, Angstrom, cm, km, m, micrometer, mm, nm**
  - nillable: **false**

- **wavelength in Stellar_Occultation**

  steward: **rings**
  namespace id: **rings**
  class: **Stellar_Occultation**
  version: **1.1**

- definition: *wavelength of the observation. Optional in labels. If the observation is over a wavelength range, use the corresponding minimum and maximum attributes instead. Nillable in which case the nil_reason should be 'inapplicable'. *
- value_data_type: **ASCII_Real**
- unit_of_measure_type: **Units_of_Length**
- valid units: **AU, Angstrom, cm, km, m, micrometer, mm, nm**
- nillable: **false**

- **wavelength_range in Science_Facets**

  steward: **pds**
  namespace id: **pds**
  class: **Science_Facets**
  version: **1.1**

    - definition: **The wavelength range within which the data collection occurred or which otherwise characterizes the observation(s). Boundaries are vague, and there is overlap.**
    - value_data_type: **ASCII_Short_String_Collapsed** - Enumerated
    - minimum_characters: **1**
    - maximum_characters: **255**
    - nillable: **false**
    - permissible values
      Far Infrared - 30 to 300 micrometers
      Gamma Ray - less than 0.01 nm
      Infrared - 0.75 to 300 micrometers
      Microwave - millimeters to one meter
      Millimeter - one to a few millimeters
      Near Infrared - 0.65 to 5.0 micrometers
      Radio - millimeters to hundreds of thousands of meters
      Submillimeter - 0.3-1.0 millimeter
      Ultraviolet - 10 to 400 nm
      Visible - 390-700 nm
      X-ray - 0.01 to 10 nm

- **x in Vector_Cartesian_3**

  steward: **pds**
  namespace id: **pds**
  class: **Vector_Cartesian_3**
  version: **1.1**

    - definition: **The x attribute provides the value of the x coordinate in a position vector.**
    - value_data_type: **ASCII_Real**
    - nillable: **false**

- **y in Vector_Cartesian_3**

  steward: **pds**
  namespace id: **pds**
  class: **Vector_Cartesian_3**
  version: **1.1**

    - definition: **The y attribute provides the value of the y coordinate in a position vector.**
    - value_data_type: **ASCII_Real**
    - nillable: **false**

- **z in Vector_Cartesian_3**

  steward: **pds**
  namespace id: **pds**
  class: **Vector_Cartesian_3**
  version: **1.1**

    - definition: **The z attribute provides the value of the z coordinate in a position vector.**
    - value_data_type: **ASCII_Real**
    - nillable: **false**

- **AdministrationRecord**

  identifier: **DD_1.1.0.1**
  administrative_note: Loaded from PDS4 Information Model
  administrative_status: Final
  change_description: *In development.
  creation_date: **2013-11-21**
  effective_date: **2013-11-21**
  last_change_date: **2013-11-21**

origin: **Planetary Data System**
registration_status: **Preferred**
unresolved_issue: **Issues still being determined.**
until_date: **2019-12-31**
label: **DD_1.1.0.1**
explanatory _comment: This is a test load of a ISO/IEC 11179 Data Dictionary from the PDS4 master model.

- **Steward**

  identifier: **Steward_PDS**
  label: **Steward_PDS**
  contact: **Elizabeth_Rye**
  organization: **RA_0001_NASA_PDS_1**

- **Submitter**

  identifier: **Submitter_PDS**
  label: **Submitter_PDS**
  contact: **Elizabeth_Rye**
  organization: **RA_0001_NASA_PDS_1**

- **RegistrationAuthority**

  Identifier: **RA_0001_NASA_PDS_1**
  organization_mailing_address: **4800 Oak Grove Drive, Pasadena, CA 91109**
  organization_name: **NASA Planetary Data System**
  label: **RA_0001_NASA_PDS_1**
  documentation_language_identifier: **LI_English**
  language_used: **LI_English**
  registrar: **PDS_Registrar**
  registration_authority_identifier: **0001_NASA_PDS_1**

9. **PDS4 Data Type Definitions Thu Nov 21 17:20:17 PST 2013**

Generated from the PDS4 Information Model Version 1.1.0.1

- **ASCII_AnyURI**

  description: **The ASCII AnyURI class indicates a URI or its subclasses URN and URL.**
  xml_schema_base_type: **xsd:anyURI**
  character_constraint: **ASCII**
  character_encoding: **UTF-8**

- **ASCII_Boolean**

  description: **The ASCII_Boolean class indicates a boolean. The allowed values are 'true' and 'false'.**
  xml_schema_base_type: **xsd:boolean**
  character_encoding: **UTF-8**

- **ASCII_DOI**

  description: **The ASCII DOI class indicates a digital object identifier (DOI).**
  formation_rule: **nn.nnnn/nnn**
  xml_schema_base_type: **xsd:string**
  character_constraint: **ASCII**
  character_encoding: **UTF-8**

- **ASCII_Date**

  description: **The ASCII_Date class indicates a date in either YMD or DOY format.**
  formation_rule: **YYYY-MM-DD/YYYY-DOY**
  xml_schema_base_type: **xsd:string**
  character_constraint: **ASCII**
  character_encoding: **UTF-8**

- **ASCII_Date_DOY**

  description: **The ASCII_Date_DOY class indicates a date in DOY format.**
  formation_rule: **YYYY-DOY**
  xml_schema_base_type: **xsd:string**
  character_constraint: **ASCII**
  character_encoding: **UTF-8**

- **ASCII_Date_Time**

  description: **The ASCII_Date_Time class indicates a date in either YMD or DOY format and time.**
  formation_rule: **YYYY-MM-DDTHH:MM:SS.SSS(Z)/YYYY-DOYTHH:MM:SS.SSS(Z)**
  xml_schema_base_type: **xsd:string**
  character_constraint: **ASCII**
  character_encoding: **UTF-8**

- **ASCII_Date_Time_DOY**

  description: **The ASCII_Date_Time_DOY class indicates a date in DOY format and time.**
  formation_rule: **YYYY-DOYTHH:MM:SS.SSS(Z)**
  xml_schema_base_type: **xsd:string**
  character_constraint: **ASCII**
  character_encoding: **UTF-8**

- **ASCII_Date_Time_UTC**

  description: **The ASCII_Date_Time_UTC class indicates a date and time in UTC format.**
  formation_rule: **YYYY-MM-DDTHH:MM:SS.SSSZ/YYYY-DOYTHH:MM:SS.SSSZ**
  xml_schema_base_type: **xsd:string**
  character_constraint: **ASCII**
  character_encoding: **UTF-8**

- **ASCII_Date_Time_YMD**

  description: **The ASCII_Date_Time_YMD class indicates a date in YMD format and time.**
  formation_rule: **YYYY-MM-DDTHH:MM:SS.SSS(Z)**
  xml_schema_base_type: **xsd:string**
  character_constraint: **ASCII**
  character_encoding: **UTF-8**

- **ASCII_Date_YMD**

  description: **The ASCII_Date_YMD class indicates a date in YMD format.**
  formation_rule: **YYYY-MM-DD**
  xml_schema_base_type: **xsd:string**
  character_constraint: **ASCII**
  character_encoding: **UTF-8**

- **ASCII_Directory_Path_Name**

  description: **The ASCII Directory Path Name class indicates a system directory path.**
  formation_rule: **dir1/dir2/**
  xml_schema_base_type: **xsd:token**
  character_constraint: **ASCII**
  minimum_characters: **1**
  maximum_characters: **255**
  character_encoding: **UTF-8**

- **ASCII_File_Name**

  description: **The ASCII File Name class indicates a system file name.**
  formation_rule: **file_name.file_extension**
  xml_schema_base_type: **xsd:token**
  character_constraint: **ASCII**
  minimum_characters: **1**
  maximum_characters: **255**
  character_encoding: **UTF-8**

- **ASCII_File_Specification_Name**

  description: **The ASCII File Specification Name class indicates a system file including directory path, file name, and file extension.**
  formation_rule: **dir1/dir2/file_name.file_extension**
  xml_schema_base_type: **xsd:token**
  character_constraint: **ASCII**
  minimum_characters: **1**
  maximum_characters: **255**
  character_encoding: **UTF-8**

- **ASCII_Integer**

  description: **The ASCII_Integer class indicates an integer.**

xml_schema_base_type: **xsd:int**
character_encoding: **UTF-8**

- **ASCII_LID**

  description: **The ASCII_LID class indicates a logical identifier.**
  formation_rule: **urn:nasa:pds:xxxx**
  xml_schema_base_type: **xsd:string**
  character_constraint: **ASCII**
  minimum_characters: **14**
  maximum_characters: **255**
  character_encoding: **UTF-8**

- **ASCII_LIDVID**

  description: **The ASCII_LIDVID class indicates a logical identifier and version identifier.**
  formation_rule: **urn:nasa:pds:xxxx::M.n**
  xml_schema_base_type: **xsd:string**
  character_constraint: **ASCII**
  minimum_characters: **19**
  maximum_characters: **255**
  character_encoding: **UTF-8**

- **ASCII_LIDVID_LID**

  description: **The ASCII_LIDVID_LID class indicates a logical identifier and version identifier or simply the logical identfier.**
  formation_rule: **urn:nasa:pds:xxxx, urn:nasa:pds:xxxx::M.n**
  xml_schema_base_type: **xsd:string**
  character_constraint: **ASCII**
  minimum_characters: **14**
  maximum_characters: **255**
  character_encoding: **UTF-8**

- **ASCII_MD5_Checksum**

  description: **The ASCII MD5 Checksum class indicates a checksum computed by the Message-Digest algorithm 5 (MD5).**
  formation_rule: **0123456789abcdef**
  xml_schema_base_type: **xsd:string**
  character_constraint: **ASCII**
  minimum_characters: **32**
  maximum_characters: **32**
  character_encoding: **UTF-8**

- **ASCII_NonNegative_Integer**

  description: **The ASCII_NonNegative_Integer class indicates a non-negative integer.**
  xml_schema_base_type: **xsd:long**
  minimum_value: **0**
  character_encoding: **UTF-8**

- **ASCII_Numeric_Base16**

  description: **The ASCII Numeric Base16 class indicates a ASCII encoded string constrained to hexadecimal digits.**
  xml_schema_base_type: **xsd:hexBinary**
  minimum_characters: **1**
  maximum_characters: **255**
  character_encoding: **UTF-8**

- **ASCII_Numeric_Base2**

  description: **The ASCII Numeric Base2 class indicates a ASCII encoded string constrained to binary digits.**
  xml_schema_base_type: **xsd:string**
  character_constraint: **ASCII**
  minimum_characters: **1**
  maximum_characters: **255**
  character_encoding: **UTF-8**

- **ASCII_Numeric_Base8**

  description: **The ASCII Numeric Base8 class indicates a ASCII encoded string constrained to octal digits.**
  xml_schema_base_type: **xsd:string**
  character_constraint: **ASCII**

minimum_characters: **1**
maximum_characters: **255**
character_encoding: **UTF-8**

- **ASCII_Real**

  description: **The ASCII_Real class indicates a real.**
  xml_schema_base_type: **xsd:double**
  character_encoding: **UTF-8**

- **ASCII_Short_String_Collapsed**

  description: **The ASCII_Short_String_Collapsed class indicates a limited length, whitespace-collapsed string.**
  xml_schema_base_type: **xsd:token**
  character_constraint: **ASCII**
  minimum_characters: **1**
  maximum_characters: **255**
  character_encoding: **UTF-8**

- **ASCII_Short_String_Preserved**

  description: **The ASCII_Short_String_Preserved class indicates a limited length, whitespace-preserved string.**
  xml_schema_base_type: **xsd:string**
  character_constraint: **ASCII**
  minimum_characters: **1**
  maximum_characters: **255**
  character_encoding: **UTF-8**

- **ASCII_String**

  description: **The ASCII_String class indicates a limited length ASCII text string with whitespaces removed.**
  xml_schema_base_type: **xsd:token**
  character_constraint: **ASCII**
  minimum_characters: **1**
  character_encoding: **UTF-8**

- **ASCII_Text_Collapsed**

  description: **The ASCII_Text_Collapsed class indicates an unlimited length, whitespace-collapsed text string.**
  xml_schema_base_type: **xsd:token**
  character_constraint: **ASCII**
  minimum_characters: **1**
  character_encoding: **UTF-8**

- **ASCII_Text_Preserved**

  description: **The ASCII_Text_Preserved class indicates an unlimited length, whitespace-preserved text string.**
  xml_schema_base_type: **xsd:string**
  character_constraint: **ASCII**
  minimum_characters: **1**
  character_encoding: **UTF-8**

- **ASCII_Time**

  description: **The ASCII_Time class indicates a time value.**
  formation_rule: **HH:MM:SS.SSS**
  xml_schema_base_type: **xsd:string**
  character_constraint: **ASCII**
  character_encoding: **UTF-8**

- **ASCII_VID**

  description: **The ASCII_VID class indicates a version identifier.**
  formation_rule: **M.m**
  xml_schema_base_type: **xsd:string**
  character_constraint: **ASCII**
  minimum_characters: **3**
  maximum_characters: **100**
  character_encoding: **UTF-8**

- **ComplexLSB16**

  description: **Complex number consisting of two LSB 8 byte decimal reals.**

- **ComplexLSB8**

  description: **Complex number consisting of two LSB 4 byte decimal reals.**

- **ComplexMSB16**

  description: **Complex number consisting of two MSB 8 byte decimal reals.**

- **ComplexMSB8**

  description: **Complex number consisting of two MSB 4 byte decimal reals.**

- **IEEE754LSBDouble**

  description: **IEEE 754 LSB double precision floating point**

- **IEEE754LSBSingle**

  description: **IEEE 754 LSB single precision floating point**

- **IEEE754MSBDouble**

  description: **IEEE 754 MSB double precision floating point**

- **IEEE754MSBSingle**

  description: **IEEE 754 MSB single precision floating point**

- **SignedBitString**

  description: **Signed Bit String**

- **SignedByte**

  description: **Signed 8-bit byte**

- **SignedLSB2**

  description: **Signed 2's-complement LSB 2-byte integer**

- **SignedLSB4**

  description: **Signed 2's-complement LSB 4-byte integer**

- **SignedLSB8**

  description: **Signed 2's-complement LSB 8-byte integer**

- **SignedMSB2**

  description: **Signed 2's-complement MSB 2-byte integer**

- **SignedMSB4**

  description: **Signed 2's-complement MSB 4-byte integer**

- **SignedMSB8**

  description: **Signed 2's-complement MSB 8-byte integer**

- **UTF8_Short_String_Collapsed**

  description: **The UTF8_Short_String_Collapsed class indicates a limited length, whitespace-collapsed string constrained to the UTF-8 character encoding.**
  xml_schema_base_type: **xsd:token**
  minimum_characters: **1**
  maximum_characters: **255**
  character_encoding: **UTF-8**

- **UTF8_Short_String_Preserved**

description: **The UTF8_Short_String_Preserved class indicates a limited length, whitespace-preserved string constrained to the UTF-8 character encoding.**
xml_schema_base_type: **xsd:string**
minimum_characters: **1**
maximum_characters: **255**
character_encoding: **UTF-8**

- **UTF8_String**

  description: **The UTF8_String class indicates a limited length UTF8 text string with whitespaces removed.**
  xml_schema_base_type: **xsd:token**
  minimum_characters: **1**
  character_encoding: **UTF-8**

- **UTF8_Text_Preserved**

  description: **The UTF8_Text_Preserved class indicates an unlimited length, whitespace-preserved text string constrained to the UTF-8 character encoding.**
  xml_schema_base_type: **xsd:string**
  minimum_characters: **1**
  character_encoding: **UTF-8**

- **UnsignedBitString**

  description: **Unsigned Bit String**

- **UnsignedByte**

  description: **Unsigned 8-bit byte**

- **UnsignedLSB2**

  description: **Unsigned 2's-complement LSB 2-byte integer**

- **UnsignedLSB4**

  description: **Unsigned 2's-complement LSB 4-byte integer**

- **UnsignedLSB8**

  description: **Unsigned 2's-complement LSB 8-byte integer**

- **UnsignedMSB2**

  description: **Unsigned 2's-complement MSB 2-byte integer**

- **UnsignedMSB4**

  description: **Unsigned 2's-complement MSB 4-byte integer**

- **UnsignedMSB8**

  description: **Unsigned 2's-complement MSB 8-byte integer**

10. **Product Index**

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

- **Ingest_LDD**

- **Product_AIP**
- **Product_Attribute_Definition**
- **Product_Browse**
- **Product_Bundle**
- **Product_Class_Definition**
- **Product_Collection**
- **Product_Context**
- **Product_DIP**
- **Product_DIP_Deep_Archive**

- **Product_Data_Set_PDS3**
- **Product_Document**
- **Product_File_Repository**
- **Product_File_Text**
- **Product_Instrument_Host_PDS3**
- **Product_Instrument_PDS3**
- **Product_Mission_PDS3**
- **Product_Observational**
- **Product_Proxy_PDS3**
- **Product_SIP**
- **Product_SPICE_Kernel**
- **Product_Service**
- **Product_Software**
- **Product_Subscription_PDS3**
- **Product_Target_PDS3**
- **Product_Thumbnail**
- **Product_Update**
- **Product_Volume_PDS3**
- **Product_Volume_Set_PDS3**
- **Product_XML_Schema**
- **Product_Zipped**----

11. **Class Index**

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

- **Archival_Information_Package**

- **DIP_Deep_Archive**
- **Dissemination_Information_Package**

- **Encoded_Header**

- **Header**

- **Ingest_LDD**

- **Product_AIP**
- **Product_Attribute_Definition**
- **Product_Browse**
- **Product_Bundle**
- **Product_Class_Definition**
- **Product_Collection**
- **Product_Context**
- **Product_DIP**
- **Product_DIP_Deep_Archive**
- **Product_Data_Set_PDS3**
- **Product_Document**
- **Product_File_Repository**
- **Product_File_Text**
- **Product_Instrument_Host_PDS3**
- **Product_Instrument_PDS3**
- **Product_Mission_PDS3**
- **Product_Observational**
- **Product_Proxy_PDS3**
- **Product_SIP**
- **Product_SPICE_Kernel**
- **Product_Service**
- **Product_Software**
- **Product_Subscription_PDS3**
- **Product_Target_PDS3**
- **Product_Thumbnail**
- **Product_Update**
- **Product_Volume_PDS3**
- **Product_Volume_Set_PDS3**
- **Product_XML_Schema**
- **Product_Zipped**

- **Radio_Occultation**
- **Radio_Occultation_Support**
- **Rings_Supplement**

- **Stellar_Occultation**
- **Submission_Information_Package**

- **Telemetry_Parameters**----

12. Attribute and Class Indices

13. Attribute Index

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

- **SCLK_start_time** - **SCLK_start_time** in rings:Radio_Occultation, **SCLK_start_time** in rings:Stellar_Occultation
- **SCLK_stop_time** - **SCLK_stop_time** in rings:Radio_Occultation, **SCLK_stop_time** in rings:Stellar_Occultation

- **abstract_desc** - **abstract_desc** in ops:Data_Set_PDS3
- **abstract_flag** - **abstract_flag** in ops:DD_Class, **abstract_flag** in ops:DD_Class_Full
- **acknowledgement_text** - **acknowledgement_text** in pds:Document
- **address** - **address** in pds:Facility
- **affiliation_type** - **affiliation_type** in pds:PDS_Affiliate
- **along_track_timing_offset** - **along_track_timing_offset** in rings:Radio_Occultation
- **alternate_designation** - **alternate_designation** in pds:Target_Identification
- **alternate_id** - **alternate_id** in pds:Alias
- **alternate_telephone_number** - **alternate_telephone_number** in pds:PDS_Affiliate
- **alternate_title** - **alternate_title** in pds:Alias
- **altitude** - **altitude** in pds:Telescope
- **aperture** - **aperture** in pds:Telescope
- **application_process_id** - **application_process_id** in img:Telemetry_Parameters
- **application_process_name** - **application_process_name** in img:Telemetry_Parameters
- **archive_status** - **archive_status** in ops:Data_Set_PDS3, **archive_status** in ops:Volume_PDS3
- **archive_status_note** - **archive_status_note** in ops:Volume_PDS3
- **attribute_concept** - **attribute_concept** in ops:DD_Attribute_Full
- **author_list** - **author_list** in ops:Software, **author_list** in pds:Citation_Information, **author_list** in pds:Document
- **axes** - **axes** in pds:Array, **axes** in pds:Array_1D, **axes** in pds:Array_2D, **axes** in pds:Array_3D
- **axis_index_order** - **axis_index_order** in pds:Array
- **axis_name** - **axis_name** in pds:Axis_Array

- **band_number** - **band_number** in img:Band_Bin
- **band_width** - **band_width** in img:Band_Bin
- **bit_fields** - **bit_fields** in pds:Packed_Data_Fields
- **bit_mask** - **bit_mask** in pds:Object_Statistics
- **bit_string** - **bit_string** in ops:Digital_Object
- **bundle_type** - **bundle_type** in pds:Bundle

- **center_wavelength** - **center_wavelength** in img:Band_Bin
- **checksum_manifest_checksum** - **checksum_manifest_checksum** in ops:Information_Package_Component
- **checksum_type** - **checksum_type** in ops:Information_Package_Component
- **citation_text** - **citation_text** in ops:Data_Set_PDS3
- **class_name** - **class_name** in ops:DD_Attribute_Full
- **collection_type** - **collection_type** in pds:Collection
- **comment** - **comment** in ops:DD_Attribute, **comment** in ops:DD_Attribute_Full, **comment** in ops:DD_Class_Full, **comment** in ops:Ingest_LDD, **comment** in pds:Alias, **comment** in pds:Context_Area, **comment** in pds:File, **comment** in pds:Internal_Reference
- **compile_note** - **compile_note** in ops:Software_Source
- **conceptual_domain** - **conceptual_domain** in ops:DD_Value_Domain_Full
- **confidence_level_note** - **confidence_level_note** in ops:Data_Set_PDS3
- **constant_value** - **constant_value** in ops:DD_Association
- **container_type** - **container_type** in pds:Zip
- **coordinate_source** - **coordinate_source** in pds:Telescope
- **copyright** - **copyright** in pds:Document
- **country** - **country** in pds:Facility
- **creation_date_time** - **creation_date_time** in pds:File
- **curating_node_id** - **curating_node_id** in ops:Volume_PDS3

- **data_regime** - **data_regime** in pds:Primary_Result_Summary
- **data_set_desc** - **data_set_desc** in ops:Data_Set_PDS3
- **data_set_id** - **data_set_id** in ops:Data_Set_PDS3
- **data_set_name** - **data_set_name** in ops:Data_Set_PDS3
- **data_set_release_date** - **data_set_release_date** in ops:Data_Set_PDS3
- **data_set_terse_desc** - **data_set_terse_desc** in ops:Data_Set_PDS3
- **data_type** - **data_type** in pds:Element_Array, **data_type** in pds:Field_Binary, **data_type** in pds:Field_Bit, **data_type** in pds:Field_Character, **data_type** in pds:Field_Delimited, **data_type** in pds:Quaternion_Component, **data_type** in pds:Vector
- **date_time** - **date_time** in pds:Update_Entry
- **definition** - **definition** in ops:DD_Attribute, **definition** in ops:DD_Attribute_Full, **definition** in ops:DD_Class, **definition** in ops:DD_Class_Full, **definition** in ops:Terminological_Entry
- **description** - **description** in ops:Information_Package, **description** in pds:Node, **description** in pds:PDS_Affiliate, **description** in pds:PDS_Guest, **description** in ops:Software, **description** in ops:Volume_PDS3, **description** in ops:Volume_Set_PDS3, **description** in pds:Agency, **description** in pds:Array, **description** in pds:Bundle, **description** in pds:Citation_Information, **description** in pds:Collection, **description** in pds:Document, **description** in pds:Document_Format, **description** in pds:Encoded_Byte_Stream, **description** in pds:External_Reference, **description** in pds:Facility, **description** in pds:Field_Binary, **description** in pds:Field_Bit, **description** in pds:Field_Character,

description in pds:Field_Delimited, **description** in pds:Field_Statistics, **description** in pds:Instrument, **description** in pds:Instrument_Host, **description** in pds:Investigation, **description** in pds:Modification_Detail, **description** in pds:Object_Statistics, **description** in pds:Observing_System, **description** in pds:Observing_System_Component, **description** in pds:Other, **description** in pds:Packed_Data_Fields, **description** in pds:Parsable_Byte_Stream, **description** in pds:Primary_Result_Summary, **description** in pds:Quaternion, **description** in pds:Quaternion_Component, **description** in pds:Resource, **description** in pds:Table_Base, **description** in pds:Target, **description** in pds:Target_Identification, **description** in pds:Telescope, **description** in pds:Update, **description** in pds:Update_Entry, **description** in pds:Vector, **description** in pds:Vector_Component, **description** in pds:Zip

- **detector_number** - **detector_number** in img:Band_Bin
- **directory_path_name** - **directory_path_name** in pds:Document_File
- **discipline_name** - **discipline_name** in pds:Discipline_Facets
- **document_name** - **document_name** in pds:Document
- **document_standard_id** - **document_standard_id** in pds:Document_File
- **doi** - **doi** in pds:Document, **doi** in pds:External_Reference
- **domain** - **domain** in pds:Science_Facets
- **dsn_station_number** - **dsn_station_number** in rings:Radio_Occultation, **dsn_station_number** in rings:Radio_Occultation_Support

- **earth_received_start_date_time** - **earth_received_start_date_time** in img:Telemetry_Parameters
- **earth_received_start_time_utc** - **earth_received_start_time_utc** in rings:Radio_Occultation
- **earth_received_stop_date_time** - **earth_received_stop_date_time** in img:Telemetry_Parameters
- **earth_received_stop_time_utc** - **earth_received_stop_time_utc** in rings:Radio_Occultation
- **editor_list** - **editor_list** in pds:Citation_Information, **editor_list** in pds:Document
- **electronic_mail_address** - **electronic_mail_address** in pds:PDS_Affiliate, **electronic_mail_address** in pds:PDS_Guest
- **elements** - **elements** in pds:Axis_Array
- **encoding_standard_id** - **encoding_standard_id** in pds:Encoded_Binary, **encoding_standard_id** in pds:Encoded_Byte_Stream, **encoding_standard_id** in pds:Encoded_Header, **encoding_standard_id** in pds:Encoded_Image
- **encoding_type** - **encoding_type** in pds:SPICE_Kernel
- **enumeration_flag** - **enumeration_flag** in ops:DD_Value_Domain, **enumeration_flag** in ops:DD_Value_Domain_Full
- **error_constant** - **error_constant** in pds:Special_Constants
- **expected_packets** - **expected_packets** in img:Telemetry_Parameters

- **facet1** - **facet1** in pds:Group_Facet1
- **facet2** - **facet2** in pds:Group_Facet2
- **field_delimiter** - **field_delimiter** in pds:Table_Delimited
- **field_format** - **field_format** in pds:Field_Binary, **field_format** in pds:Field_Bit, **field_format** in pds:Field_Character, **field_format** in pds:Field_Delimited
- **field_length** - **field_length** in pds:Field_Binary, **field_length** in pds:Field_Character
- **field_location** - **field_location** in pds:Field_Binary, **field_location** in pds:Field_Character
- **field_number** - **field_number** in pds:Field
- **fields** - **fields** in pds:Group, **fields** in pds:Record
- **file_name** - **file_name** in pds:File
- **file_size** - **file_size** in pds:File
- **files** - **files** in ops:Software_Binary, **files** in ops:Software_Script, **files** in ops:Software_Source
- **filter_number** - **filter_number** in img:Band_Bin
- **first_sampling_parameter_value** - **first_sampling_parameter_value** in pds:Uniformly_Sampled
- **format_type** - **format_type** in pds:Document_Format
- **formation_rule** - **formation_rule** in ops:DD_Value_Domain, **formation_rule** in ops:DD_Value_Domain_Full
- **frequency_band** - **frequency_band** in rings:Radio_Occultation, **frequency_band** in rings:Radio_Occultation_Support
- **full_name** - **full_name** in ops:Ingest_LDD, **full_name** in ops:Subscriber_PDS3, **full_name** in pds:Update_Entry

- **grating_position** - **grating_position** in img:Band_Bin
- **group_length** - **group_length** in pds:Group_Field_Binary, **group_length** in pds:Group_Field_Character
- **group_location** - **group_location** in pds:Group_Field_Binary, **group_location** in pds:Group_Field_Character
- **group_number** - **group_number** in pds:Group
- **groups** - **groups** in pds:Group, **groups** in pds:Record

- **high_instrument_saturation** - **high_instrument_saturation** in pds:Special_Constants
- **high_representation_saturation** - **high_representation_saturation** in pds:Special_Constants
- **highest_detectable_opacity** - **highest_detectable_opacity** in rings:Radio_Occultation, **highest_detectable_opacity** in rings:Stellar_Occultation

- **information_model_version** - **information_model_version** in pds:Identification_Area
- **install_note** - **install_note** in ops:Software_Script
- **institution_name** - **institution_name** in pds:Node, **institution_name** in pds:PDS_Affiliate
- **instrument_desc** - **instrument_desc** in ops:Instrument_PDS3
- **instrument_host_desc** - **instrument_host_desc** in ops:Instrument_Host_PDS3
- **instrument_host_id** - **instrument_host_id** in ops:Instrument_Host_PDS3
- **instrument_host_name** - **instrument_host_name** in ops:Instrument_Host_PDS3
- **instrument_host_type** - **instrument_host_type** in ops:Instrument_Host_PDS3
- **instrument_id** - **instrument_id** in ops:Instrument_PDS3
- **instrument_name** - **instrument_name** in ops:Instrument_PDS3
- **instrument_serial_number** - **instrument_serial_number** in ops:Instrument_PDS3
- **instrument_type** - **instrument_type** in ops:Instrument_PDS3
- **instrument_version_id** - **instrument_version_id** in ops:Instrument_PDS3
- **invalid_constant** - **invalid_constant** in pds:Special_Constants

- **kernel_type** - **kernel_type** in pds:SPICE_Kernel
- **keyword** - **keyword** in pds:Citation_Information

- **language** - **language** in ops:Terminological_Entry
- **last_modification_date_time** - **last_modification_date_time** in ops:Ingest_LDD
- **last_sampling_parameter_value** - **last_sampling_parameter_value** in pds:Uniformly_Sampled
- **ldd_version_id** - **ldd_version_id** in ops:Ingest_LDD, **ldd_version_id** in pds:XML_Schema
- **lid_reference** - **lid_reference** in pds:Bundle_Member_Entry, **lid_reference** in pds:Internal_Reference
- **lidvid_reference** - **lidvid_reference** in pds:Bundle_Member_Entry, **lidvid_reference** in pds:Internal_Reference
- **light_source_incidence_angle** - **light_source_incidence_angle** in rings:Radio_Occultation, **light_source_incidence_angle** in rings:Stellar_Occultation
- **line_display_direction** - **line_display_direction** in pds:Display_2D_Image
- **local_identifier** - **local_identifier** in ops:DD_Association, **local_identifier** in ops:DD_Attribute, **local_identifier** in ops:DD_Attribute_Full, **local_identifier** in ops:DD_Class, **local_identifier** in ops:DD_Class_Full, **local_identifier** in ops:Subscriber_PDS3, **local_identifier** in pds:Axis_Array, **local_identifier** in pds:Byte_Stream, **local_identifier** in pds:Field_Statistics, **local_identifier** in pds:File, **local_identifier** in pds:Geometry, **local_identifier** in pds:Object_Statistics, **local_identifier** in pds:Quaternion, **local_identifier** in pds:Update, **local_identifier** in pds:Vector
- **local_mean_solar_time** - **local_mean_solar_time** in pds:Time_Coordinates
- **local_true_solar_time** - **local_true_solar_time** in pds:Time_Coordinates
- **logical_identifier** - **logical_identifier** in pds:Identification_Area
- **low_instrument_saturation** - **low_instrument_saturation** in pds:Special_Constants
- **low_representation_saturation** - **low_representation_saturation** in pds:Special_Constants
- **lowest_detectable_opacity** - **lowest_detectable_opacity** in rings:Radio_Occultation, **lowest_detectable_opacity** in rings:Stellar_Occultation

- **maximum** - **maximum** in pds:Field_Statistics, **maximum** in pds:Object_Statistics
- **maximum_characters** - **maximum_characters** in ops:DD_Value_Domain, **maximum_characters** in ops:DD_Value_Domain_Full
- **maximum_field_length** - **maximum_field_length** in pds:Field_Delimited
- **maximum_light_source_incidence_angle** - **maximum_light_source_incidence_angle** in rings:Radio_Occultation
- **maximum_observed_event_time** - **maximum_observed_event_time** in rings:Radio_Occultation_Support
- **maximum_observed_ring_azimuth** - **maximum_observed_ring_azimuth** in rings:Radio_Occultation, **maximum_observed_ring_azimuth** in rings:Stellar_Occultation
- **maximum_observed_ring_elevation** - **maximum_observed_ring_elevation** in rings:Radio_Occultation, **maximum_observed_ring_elevation** in rings:Stellar_Occultation
- **maximum_occurrences** - **maximum_occurrences** in ops:DD_Association, **maximum_occurrences** in ops:DD_Association_External
- **maximum_radial_sampling_interval** - **maximum_radial_sampling_interval** in rings:Radio_Occultation, **maximum_radial_sampling_interval** in rings:Stellar_Occultation
- **maximum_record_length** - **maximum_record_length** in pds:Record_Delimited
- **maximum_ring_longitude** - **maximum_ring_longitude** in rings:Radio_Occultation, **maximum_ring_longitude** in rings:Stellar_Occultation
- **maximum_ring_radius** - **maximum_ring_radius** in rings:Radio_Occultation, **maximum_ring_radius** in rings:Stellar_Occultation
- **maximum_scaled_value** - **maximum_scaled_value** in pds:Object_Statistics
- **maximum_value** - **maximum_value** in ops:DD_Value_Domain, **maximum_value** in ops:DD_Value_Domain_Full
- **maximum_wavelength** - **maximum_wavelength** in rings:Radio_Occultation, **maximum_wavelength** in rings:Stellar_Occultation
- **md5_checksum** - **md5_checksum** in pds:File, **md5_checksum** in pds:Object_Statistics
- **mean** - **mean** in pds:Field_Statistics, **mean** in pds:Object_Statistics
- **median** - **median** in pds:Field_Statistics, **median** in pds:Object_Statistics
- **medium_type** - **medium_type** in ops:NSSDC, **medium_type** in ops:Volume_PDS3
- **member_status** - **member_status** in pds:Bundle_Member_Entry
- **minimum** - **minimum** in pds:Field_Statistics, **minimum** in pds:Object_Statistics
- **minimum_characters** - **minimum_characters** in ops:DD_Value_Domain, **minimum_characters** in ops:DD_Value_Domain_Full
- **minimum_light_source_incidence_angle** - **minimum_light_source_incidence_angle** in rings:Radio_Occultation
- **minimum_observed_event_time** - **minimum_observed_event_time** in rings:Radio_Occultation_Support
- **minimum_observed_ring_azimuth** - **minimum_observed_ring_azimuth** in rings:Radio_Occultation, **minimum_observed_ring_azimuth** in rings:Stellar_Occultation
- **minimum_observed_ring_elevation** - **minimum_observed_ring_elevation** in rings:Radio_Occultation, **minimum_observed_ring_elevation** in rings:Stellar_Occultation
- **minimum_occurrences** - **minimum_occurrences** in ops:DD_Association, **minimum_occurrences** in ops:DD_Association_External
- **minimum_radial_sampling_interval** - **minimum_radial_sampling_interval** in rings:Radio_Occultation, **minimum_radial_sampling_interval** in rings:Stellar_Occultation
- **minimum_ring_longitude** - **minimum_ring_longitude** in rings:Radio_Occultation, **minimum_ring_longitude** in rings:Stellar_Occultation
- **minimum_ring_radius** - **minimum_ring_radius** in rings:Radio_Occultation, **minimum_ring_radius** in rings:Stellar_Occultation
- **minimum_scaled_value** - **minimum_scaled_value** in pds:Object_Statistics
- **minimum_value** - **minimum_value** in ops:DD_Value_Domain, **minimum_value** in ops:DD_Value_Domain_Full
- **minimum_wavelength** - **minimum_wavelength** in rings:Radio_Occultation, **minimum_wavelength** in rings:Stellar_Occultation
- **missing_constant** - **missing_constant** in pds:Special_Constants
- **mission_desc** - **mission_desc** in ops:Mission_PDS3
- **mission_name** - **mission_name** in ops:Mission_PDS3
- **mission_objectives_summary** - **mission_objectives_summary** in ops:Mission_PDS3

- **mission_start_date** - **mission_start_date** in ops:Mission_PDS3
- **mission_stop_date** - **mission_stop_date** in ops:Mission_PDS3
- **model_id** - **model_id** in pds:Instrument
- **modification_date** - **modification_date** in pds:Modification_Detail

- **naif_host_id** - **naif_host_id** in pds:Instrument_Host
- **naif_instrument_id** - **naif_instrument_id** in pds:Instrument
- **name** - **name** in ops:DD_Association_External, **name** in ops:DD_Attribute, **name** in ops:DD_Attribute_Full, **name** in ops:DD_Class, **name** in ops:DD_Class_Full, **name** in ops:External_Reference_Extended, **name** in ops:Ingest_LDD, **name** in pds:Node, **name** in pds:PDS_Affiliate, **name** in pds:PDS_Guest, **name** in ops:Software, **name** in ops:Agency, **name** in pds:Byte_Stream, **name** in pds:Facility, **name** in pds:Field, **name** in pds:Field_Binary, **name** in pds:Field_Bit, **name** in pds:Field_Character, **name** in pds:Field_Delimited, **name** in pds:Instrument, **name** in pds:Instrument_Host, **name** in pds:Investigation, **name** in pds:Investigation_Area, **name** in pds:Observing_System, **name** in pds:Observing_System_Component, **name** in pds:Quaternion, **name** in pds:Quaternion_Component, **name** in pds:Resource, **name** in pds:Target, **name** in pds:Target_Identification, **name** in ops:Terminological_Entry, **name** in pds:Vector, **name** in pds:Vector_Component
- **namespace_id** - **namespace_id** in ops:DD_Association_External, **namespace_id** in ops:DD_Attribute_Full, **namespace_id** in ops:DD_Class_Full, **namespace_id** in ops:Ingest_LDD
- **nil_reason** - **nil_reason** in ops:Symbolic_Literals_PDS
- **nillable_flag** - **nillable_flag** in ops:DD_Attribute, **nillable_flag** in ops:DD_Attribute_Full
- **not_applicable_constant** - **not_applicable_constant** in pds:Special_Constants
- **nssdc_collection_id** - **nssdc_collection_id** in ops:NSSDC

- **object_length** - **object_length** in pds:Encoded_Byte_Stream, **object_length** in pds:Header, **object_length** in pds:Parsable_Byte_Stream
- **observed_event_start_tdb** - **observed_event_start_tdb** in rings:Radio_Occultation, **observed_event_start_tdb** in rings:Stellar_Occultation
- **observed_event_stop_tdb** - **observed_event_stop_tdb** in rings:Radio_Occultation, **observed_event_stop_tdb** in rings:Stellar_Occultation
- **observed_ring_elevation** - **observed_ring_elevation** in rings:Radio_Occultation, **observed_ring_elevation** in rings:Stellar_Occultation
- **occultation_type** - **occultation_type** in rings:Radio_Occultation, **occultation_type** in rings:Radio_Occultation_Support, **occultation_type** in rings:Stellar_Occultation
- **offset** - **offset** in pds:Array, **offset** in pds:Encoded_Byte_Stream, **offset** in pds:Parsable_Byte_Stream, **offset** in pds:Table_Base
- **orbit_direction** - **orbit_direction** in ops:Target_PDS3
- **orbit_number** - **orbit_number** in rings:Radio_Occultation, **orbit_number** in rings:Radio_Occultation_Support, **orbit_number** in rings:Stellar_Occultation
- **original_band** - **original_band** in img:Band_Bin
- **os_version** - **os_version** in ops:Software_Binary, **os_version** in ops:Software_Source

- **packet_map_mask** - **packet_map_mask** in img:Telemetry_Parameters
- **parsing_standard_id** - **parsing_standard_id** in ops:Checksum_Manifest, **parsing_standard_id** in ops:Service_Description, **parsing_standard_id** in pds:Header, **parsing_standard_id** in pds:Parsable_Byte_Stream, **parsing_standard_id** in pds:SPICE_Kernel, **parsing_standard_id** in pds:Table_Delimited, **parsing_standard_id** in pds:XML_Schema
- **pattern** - **pattern** in ops:DD_Value_Domain, **pattern** in ops:DD_Value_Domain_Full
- **phone_book_flag** - **phone_book_flag** in pds:PDS_Affiliate
- **planetary_occultation_flag** - **planetary_occultation_flag** in rings:Radio_Occultation, **planetary_occultation_flag** in rings:Radio_Occultation_Support, **planetary_occultation_flag** in rings:Stellar_Occultation
- **postal_address_text** - **postal_address_text** in pds:PDS_Affiliate
- **preferred_flag** - **preferred_flag** in ops:Terminological_Entry
- **primary_body_name** - **primary_body_name** in ops:Target_PDS3
- **processing_level** - **processing_level** in pds:Primary_Result_Summary
- **processing_level_id** - **processing_level_id** in pds:Primary_Result_Summary
- **producer_full_name** - **producer_full_name** in ops:Data_Set_PDS3
- **product_class** - **product_class** in pds:Identification_Area
- **program_notes_id** - **program_notes_id** in ops:Software_Binary, **program_notes_id** in ops:Software_Source
- **programmers_manual_id** - **programmers_manual_id** in ops:Software
- **publication_date** - **publication_date** in ops:Volume_PDS3, **publication_date** in pds:Document
- **publication_year** - **publication_year** in pds:Citation_Information
- **purpose** - **purpose** in pds:Primary_Result_Summary

- **radial_resolution** - **radial_resolution** in rings:Radio_Occultation, **radial_resolution** in rings:Stellar_Occultation
- **radial_sampling_interval** - **radial_sampling_interval** in rings:Radio_Occultation, **radial_sampling_interval** in rings:Stellar_Occultation
- **received_packets** - **received_packets** in img:Telemetry_Parameters
- **record_delimiter** - **record_delimiter** in pds:Stream_Text, **record_delimiter** in pds:Table_Binary, **record_delimiter** in pds:Table_Character, **record_delimiter** in pds:Table_Delimited
- **record_length** - **record_length** in pds:Record_Binary, **record_length** in pds:Record_Character
- **records** - **records** in pds:File, **records** in pds:Table_Base, **records** in pds:Table_Delimited
- **reference_frame_id** - **reference_frame_id** in pds:Vector, **reference_frame_id** in pds:Vector_Cartesian_3
- **reference_text** - **reference_text** in pds:External_Reference
- **reference_time_utc** - **reference_time_utc** in rings:Radio_Occultation, **reference_time_utc** in rings:Radio_Occultation_Support
- **reference_type** - **reference_type** in ops:DD_Association, **reference_type** in ops:DD_Association_External, **reference_type** in pds:Bundle_Member_Entry, **reference_type** in pds:Internal_Reference, **reference_type** in pds:Inventory

- **registered_by** - **registered_by** in ops:DD_Attribute_Full, **registered_by** in ops:DD_Class_Full
- **registration_authority_id** - **registration_authority_id** in ops:DD_Attribute_Full, **registration_authority_id** in ops:DD_Class_Full
- **registration_date** - **registration_date** in pds:PDS_Affiliate, **registration_date** in pds:PDS_Guest
- **repetitions** - **repetitions** in pds:Group
- **revision_id** - **revision_id** in pds:Document
- **ring_event_start_tdb** - **ring_event_start_tdb** in rings:Radio_Occultation, **ring_event_start_tdb** in rings:Stellar_Occultation
- **ring_event_start_time_utc** - **ring_event_start_time_utc** in rings:Radio_Occultation, **ring_event_start_time_utc** in rings:Stellar_Occultation
- **ring_event_stop_tdb** - **ring_event_stop_tdb** in rings:Radio_Occultation, **ring_event_stop_tdb** in rings:Stellar_Occultation
- **ring_event_stop_time_utc** - **ring_event_stop_time_utc** in rings:Radio_Occultation, **ring_event_stop_time_utc** in rings:Stellar_Occultation
- **ring_observation_id** - **ring_observation_id** in rings:Radio_Occultation, **ring_observation_id** in rings:Radio_Occultation_Support, **ring_observation_id** in rings:Rings_Supplement, **ring_observation_id** in rings:Stellar_Occultation
- **ring_occultation_direction** - **ring_occultation_direction** in rings:Radio_Occultation, **ring_occultation_direction** in rings:Radio_Occultation_Support, **ring_occultation_direction** in rings:Stellar_Occultation
- **ring_profile_direction** - **ring_profile_direction** in rings:Radio_Occultation, **ring_profile_direction** in rings:Radio_Occultation_Support, **ring_profile_direction** in rings:Stellar_Occultation
- **rotation_direction** - **rotation_direction** in ops:Target_PDS3

- **sample_display_direction** - **sample_display_direction** in pds:Display_2D_Image
- **sampling_parameter_interval** - **sampling_parameter_interval** in pds:Uniformly_Sampled, **sampling_parameter_interval** in rings:Radio_Occultation_Support
- **sampling_parameter_name** - **sampling_parameter_name** in pds:Uniformly_Sampled, **sampling_parameter_name** in rings:Radio_Occultation_Support
- **sampling_parameter_scale** - **sampling_parameter_scale** in pds:Uniformly_Sampled
- **sampling_parameter_unit** - **sampling_parameter_unit** in pds:Uniformly_Sampled, **sampling_parameter_unit** in rings:Radio_Occultation_Support
- **saturated_constant** - **saturated_constant** in pds:Special_Constants
- **scaling_factor** - **scaling_factor** in img:Band_Bin, **scaling_factor** in pds:Element_Array, **scaling_factor** in pds:Field_Binary, **scaling_factor** in pds:Field_Bit, **scaling_factor** in pds:Field_Character, **scaling_factor** in pds:Field_Delimited
- **sequence_number** - **sequence_number** in pds:Axis_Array, **sequence_number** in pds:Quaternion_Component, **sequence_number** in pds:Vector_Component
- **serial_number** - **serial_number** in pds:Instrument, **serial_number** in pds:Instrument_Host
- **software_dialect** - **software_dialect** in ops:Software_Source
- **software_format_type** - **software_format_type** in ops:Software_Binary, **software_format_type** in ops:Software_Source
- **software_id** - **software_id** in ops:Software
- **software_language** - **software_language** in ops:Software_Source
- **software_type** - **software_type** in ops:Software
- **solar_longitude** - **solar_longitude** in pds:Time_Coordinates
- **sort_name** - **sort_name** in pds:PDS_Affiliate, **sort_name** in pds:PDS_Guest
- **source_pds3_id** - **source_pds3_id** in rings:Radio_Occultation, **source_pds3_id** in rings:Rings_Supplement, **source_pds3_id** in rings:Stellar_Occultation
- **spacecraft_event_start_time_utc** - **spacecraft_event_start_time_utc** in rings:Radio_Occultation
- **spacecraft_event_stop_time_utc** - **spacecraft_event_stop_time_utc** in rings:Radio_Occultation
- **specified_unit_id** - **specified_unit_id** in ops:DD_Value_Domain, **specified_unit_id** in ops:DD_Value_Domain_Full
- **spice_file_name** - **spice_file_name** in img:Telemetry_Parameters
- **spice_filename** - **spice_filename** in rings:Radio_Occultation_Support
- **standard_deviation** - **standard_deviation** in img:Band_Bin, **standard_deviation** in pds:Field_Statistics, **standard_deviation** in pds:Object_Statistics
- **star_name** - **star_name** in rings:Stellar_Occultation
- **start_bit** - **start_bit** in pds:Field_Bit
- **start_date** - **start_date** in pds:Investigation
- **start_date_time** - **start_date_time** in ops:Data_Set_PDS3, **start_date_time** in pds:Time_Coordinates
- **starting_point_identifier** - **starting_point_identifier** in pds:Document_Format
- **steward_id** - **steward_id** in ops:DD_Attribute_Full, **steward_id** in ops:DD_Class_Full, **steward_id** in ops:Ingest_LDD
- **stop_bit** - **stop_bit** in pds:Field_Bit
- **stop_date** - **stop_date** in pds:Investigation
- **stop_date_time** - **stop_date_time** in ops:Data_Set_PDS3, **stop_date_time** in pds:Time_Coordinates
- **sub_stellar_clock_angle** - **sub_stellar_clock_angle** in rings:Stellar_Occultation
- **sub_stellar_ring_azimuth** - **sub_stellar_ring_azimuth** in rings:Stellar_Occultation
- **subfacet1** - **subfacet1** in pds:Group_Facet1
- **subfacet2** - **subfacet2** in pds:Group_Facet2
- **submitter_name** - **submitter_name** in ops:DD_Attribute, **submitter_name** in ops:DD_Attribute_Full, **submitter_name** in ops:DD_Class, **submitter_name** in ops:DD_Class_Full
- **subscription_id** - **subscription_id** in ops:Subscriber_PDS3
- **supported_architecture_note** - **supported_architecture_note** in ops:Software_Binary, **supported_architecture_note** in ops:Software_Source
- **supported_environment_note** - **supported_environment_note** in ops:Software_Script
- **supported_operating_system_note** - **supported_operating_system_note** in ops:Software_Binary, **supported_operating_system_note** in ops:Software_Source
- **system_requirements_note** - **system_requirements_note** in ops:Software_Binary, **system_requirements_note** in ops:Software_Script, **system_requirements_note** in ops:Software_Source

- **target_desc** - **target_desc** in ops:Target_PDS3
- **target_name** - **target_name** in ops:Target_PDS3
- **target_type** - **target_type** in ops:Target_PDS3
- **team_name** - **team_name** in pds:PDS_Affiliate
- **telemetry_format_id** - **telemetry_format_id** in img:Telemetry_Parameters
- **telemetry_provider_id** - **telemetry_provider_id** in img:Telemetry_Parameters
- **telemetry_source_name** - **telemetry_source_name** in img:Telemetry_Parameters
- **telemetry_source_type** - **telemetry_source_type** in img:Telemetry_Parameters
- **telephone_number** - **telephone_number** in pds:PDS_Affiliate
- **telescope_latitude** - **telescope_latitude** in pds:Telescope
- **telescope_longitude** - **telescope_longitude** in pds:Telescope
- **title** - **title** in pds:Identification_Area
- **transfer_manifest_checksum** - **transfer_manifest_checksum** in ops:Information_Package_Component
- **type** - **type** in ops:DD_Attribute_Full, **type** in ops:DD_Class_Full, **type** in pds:Facility, **type** in pds:Instrument, **type** in pds:Instrument_Host, **type** in pds:Investigation, **type** in pds:Investigation_Area, **type** in pds:Observing_System_Component, **type** in pds:Primary_Result_Summary, **type** in pds:Quaternion, **type** in pds:Resource, **type** in pds:Target, **type** in pds:Target_Identification, **type** in pds:Vector

- **unit** - **unit** in pds:Axis_Array, **unit** in pds:Element_Array, **unit** in pds:Field_Binary, **unit** in pds:Field_Bit, **unit** in pds:Field_Character, **unit** in pds:Field_Delimited, **unit** in pds:Vector_Component
- **unit_of_measure_type** - **unit_of_measure_type** in ops:DD_Value_Domain, **unit_of_measure_type** in ops:DD_Value_Domain_Full
- **unknown_constant** - **unknown_constant** in pds:Special_Constants
- **url** - **url** in ops:External_Reference_Extended, **url** in pds:Resource
- **users_manual_id** - **users_manual_id** in ops:Software

- **valid_maximum** - **valid_maximum** in pds:Special_Constants
- **valid_minimum** - **valid_minimum** in pds:Special_Constants
- **value** - **value** in ops:DD_Permissible_Value, **value** in ops:DD_Permissible_Value_Full, **value** in pds:Quaternion_Component, **value** in pds:Vector_Component
- **value_begin_date** - **value_begin_date** in ops:DD_Permissible_Value_Full
- **value_data_type** - **value_data_type** in ops:DD_Value_Domain, **value_data_type** in ops:DD_Value_Domain_Full
- **value_end_date** - **value_end_date** in ops:DD_Permissible_Value_Full
- **value_meaning** - **value_meaning** in ops:DD_Permissible_Value, **value_meaning** in ops:DD_Permissible_Value_Full
- **value_offset** - **value_offset** in img:Band_Bin, **value_offset** in pds:Element_Array, **value_offset** in pds:Field_Binary, **value_offset** in pds:Field_Bit, **value_offset** in pds:Field_Character, **value_offset** in pds:Field_Delimited
- **vector_components** - **vector_components** in pds:Vector
- **version_id** - **version_id** in ops:DD_Attribute, **version_id** in ops:DD_Attribute_Full, **version_id** in ops:DD_Class, **version_id** in ops:DD_Class_Full, **version_id** in ops:Software, **version_id** in pds:Identification_Area, **version_id** in pds:Instrument_Host, **version_id** in pds:Modification_Detail
- **volume_de_fullname** - **volume_de_fullname** in ops:Volume_PDS3
- **volume_format** - **volume_format** in ops:Volume_PDS3
- **volume_id** - **volume_id** in ops:Volume_PDS3
- **volume_name** - **volume_name** in ops:Volume_PDS3
- **volume_series_name** - **volume_series_name** in ops:Volume_Set_PDS3
- **volume_set_id** - **volume_set_id** in ops:Volume_PDS3, **volume_set_id** in ops:Volume_Set_PDS3
- **volume_set_name** - **volume_set_name** in ops:Volume_Set_PDS3
- **volume_size** - **volume_size** in ops:Volume_PDS3
- **volume_version_id** - **volume_version_id** in ops:Volume_PDS3
- **volumes** - **volumes** in ops:Volume_Set_PDS3

- **wavelength** - **wavelength** in rings:Radio_Occultation, **wavelength** in rings:Stellar_Occultation
- **wavelength_range** - **wavelength_range** in pds:Science_Facets

- **x** - **x** in pds:Vector_Cartesian_3

- **y** - **y** in pds:Vector_Cartesian_3

- **z** - **z** in pds:Vector_Cartesian_3